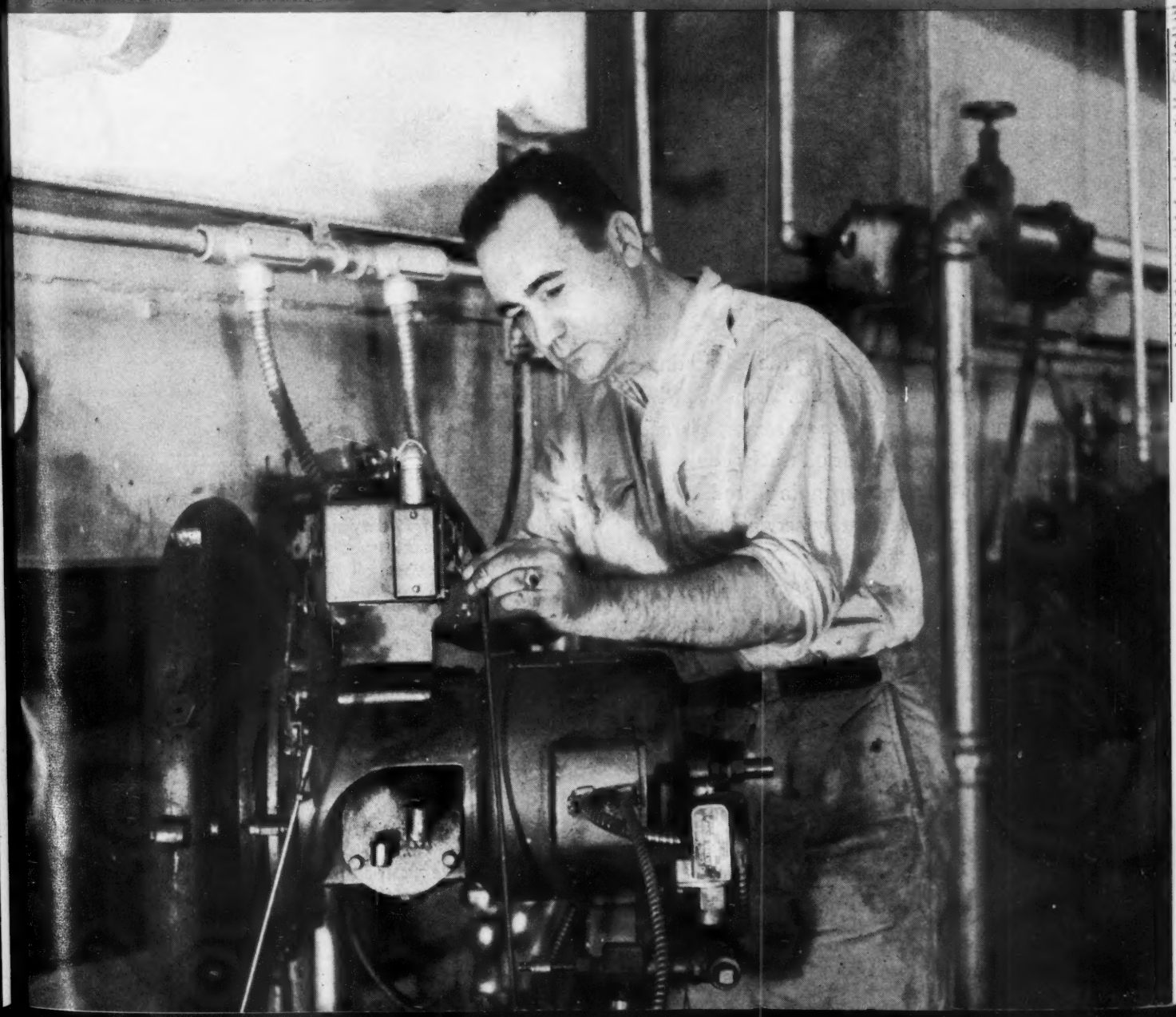
OF MICHIGAN
18 1950
ENGINEERING
IBRARY

JULY
1950

fueloil & oil heat

Commercial
Industrial
Oilburning
Features



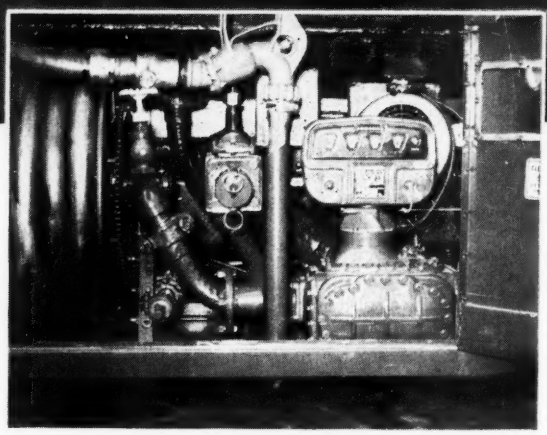
UNIVERSITY OF MICHIGAN LIBRARIES

New LUBE OIL Tank Trucks

Equipped with BRODIE METERS

. . . Serve Busy Airports

It's no small job servicing the lubricating oil needs of airliners on short stop-overs. To speed up lube-oil service and maintain *exact gallonage records*, a large fleet of compactly designed aircraft oil trucks equipped with Brodie Meters and distance-spanning Brodimatic Counters are efficiently and accurately serving major airports along mainly traveled flight routes. Where compactness, speed, accuracy and dependability are required, you'll find Brodie Meters at work. Why not investigate Brodie Meters for your needs, today. Write for full details.



main view (above) shows one of a fleet of twenty new Sinclair Aircraft-Oil trucks, specially designed for airport service.

close up view: shows compact arrangement of Brodie Meters equipped with direct-reading Brodimatic Counters, installed on this modern fleet of trucks.

BRODIE METERS

DEPENDABLY ACCURATE

RALPH N. BRODIE CO., INC. 61ST & LOWELL, OAKLAND 8, CALIFORNIA, U.S.A.

Division Offices: CHRYSLER BLDG., NEW YORK CITY • 59 E. VAN BUREN, CHICAGO 5 • 2101 S. SAN PEDRO, LOS ANGELES 11, CALIFORNIA
302 SOUTH PEARL ST., DALLAS 1, TEXAS • 221-9TH AVE. NORTH, SEATTLE 9, WASH. • *REPRESENTATIVES AND STOCKS IN ALL PRINCIPAL CITIES*

fueloil & oil heat

VOL. 9, NO. 7

JULY

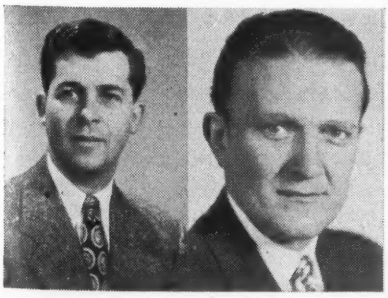
1950

Names in the News

Edward T. Nahill has joined Harold E. Sweeney Corp., Philadelphia 7, Pa., wholesale distributor for General Electric oilfired equipment, effective June 1. The firm is operating in Philadelphia, Montgomery, Delaware and Chester Counties of Pennsylvania. Mr. Nahill was associated with Bert Sweeney in a General Electric operation in 1938, has been a field representative for York-Shipley and most recently was with Hunter Sales Corp., manufacturers of aluminum combination windows and doors.

Sidney J. Horton is the new president, Oil Equipment Mfg. Corp., New Haven 6, Conn., manufacturers and national distributors of oilheating accessories. Mr. Horton, a graduate of Bay Path Institute has been sales manager for Elm City Filling Stations for the past 4½ years. During the War he served with the United States Air Force for 5 years in charge of S-2 Base Intelligence.

David K. Pearce and *Robert E. Steffens* have been added to the sales force of the Thatcher Furnace Co., Garwood, N. J. Both have had considerable experience in the heating field. Mr. Pearce will cover southern Ohio and Indiana and the entire state of Ken-



Pearce Steffens

CONTENTS

SUBJECT	PAGE	AUTHOR
Residual Oils, Price and Prospect	35	JOSEPH H. SALMON
Boilers for Heavy Oilfiring	38	G. E. OLSEN
Non-Domestic Uses	41	BERT DUNPHY
Flexible Heat and Power	44	GEORGE D. FRANK
Electronic Controls for Big Jobs	48	J. W. SCHULZ
Heavy Oil Distributor	52	ROBERT GRAY
Fueloil Heaters for Storage Terminals	56	R. LISSON
New England Forum	59	
Largest Garden Apartment Converts	63	SIDNEY EDELMAN

NEWS

Residual Heating Burners by States	43	
	5	Names in the News
Todd Converts Pulaski to Oil	47	
	8	Editorial Leaks
Industrial Warm Air Heaters	54	
	10	Oilheating Trends
Crotty Adds Equipment	64	
	14	Government on Fuels
Papers Discuss Combustion Chambers	65	
	82	Industry Groups
Heated Sidewalk Melts Snow	66	
	89	Manufacturers' Activities
Department of Labor Fueloil Prices	66	
	104	New Products
Walter Hervey Adds Day Sales Course	66	
	120	Readers' Problems
Indianapolis Homes 22% Oilheated	68	
	128	Prize Contest
New England Burner Show	72	
	130	Everyday Snags
Comparative Fuel Values Chart	78	
	160	Degree Day Tables
OHI Analyzes Philadelphia Registration	157	

DEPARTMENTS

COPYRIGHT 1950, HEATING PUBLISHERS, INC. ALL RIGHTS RESERVED. NO PART MAY BE REPRINTED IN ANY FORM WITHOUT WRITTEN PERMISSION.

Acceptance under Sec. 34.64, P. L. & R., authorized.

VOLUME 9, NUMBER 7 OF FUELOIL & OIL HEAT. PUBLISHED MONTHLY BY HEATING PUBLISHERS, INC., BALTIMORE, MD., AND 232 MADISON AVE., NEW YORK 16, N. Y., SUCCESSOR TO FUELOIL JOURNAL (1922) AND AIR CONDITIONING & OIL HEAT (1928), JULY, 1950.

HEATING PUBLISHERS, INC., 232 Madison Ave., New York 16
Phone: LExington 2-4566 & 4567

LEOD D. BECKER, *Chairman, Board of Directors*

ROBERT GRAY, *Editor* — BERT DUNPHY, *Assistant Editor* — A. G. WINKLER, *Advertising Manager*

Lee Steedle, Advertising

Mid-West Manager: Harold J. Hannigan
549 W. Washington Blvd., Chicago 6 Phone: Financial 6-3221

Pacific Coast Representative: Don Harway
1709 West 8th St., Los Angeles 14, Cal. Phone: Dunkirk 2-8576

MEMBER CCA

Yearly: $3.00

Canadian: $4.00

single copy: 35¢

UNIVERSITY OF MICHIGAN LIBRARIES

PUMPING Aviation GASOLINE

WITH THE

ROPER TANK TRUCK PUMP

3600 SERIES

ROPER PUMP refueling a TWA Constellation with 100-octane aviation gasoline

AMPLE CAPACITIES *at* SLOW SPEEDS

The Roper 3600 Pump in this Texaco tank truck unit helps to maintain speedy, efficient refueling at busy LaGuardia Field. In this instance, fast refueling is gained by the Roper providing *ample capacity* at *slow speeds*... high RPM, which puts terrific strain on engine and pump alike, is not necessary. This Roper Pump series features equal size, hardened pumping gears running in axial hydraulic balance, an extra deep packing box with split-type gland for easy repacking, an ample size relief valve to permit shut-off without stopping pump, many other construction details which add to long service life and low maintenance costs.

REFUELING AND DEFUELING

In instances where aircraft repairs necessitate emptying of fuel tanks, rugged Ropers are equally efficient. Self-priming at all times, they defuel immediately after the engine is started in reverse. Perhaps you have a similar application where Roper adaptability will pay off. Investigate this dependable line today!

Send for Descriptive Catalog and Facts.

GEO. D. ROPER CORP.
767 Blackhawk Park Ave.
ROCKFORD, ILLINOIS

ROPER Rotary Pumps

DEPENDABILITY SINCE 1857

tucky. Mr. Steffens has been assigned the northern Ohio territory.

Thomas I. Byrd has been named vice president in charge of sales, Lau Blower Co., Dayton, Ohio an executive office created to care for the company's expanding business in air handling equipment. Mr. Byrd has been Lau's sales manager since 1943 and before that was Department Manager in the Market Development Div., Armco Steel Corp.

George A. Heath, Mechanicsburg, Pa., has been appointed sales representative by Gorton Heating Corp., Cranford, N. J. He will operate in the Harrisburg, York, Lancaster and Williamsport area of the state of Pennsylvania.

Horace E. Davenport, George W. Pickering Co., Salem, Mass., as president, Independent Oil Men's Association, Boston, has been appointed to the Committee on Imports, National Petroleum Council. The Council, a civilian organization which collaborates with the U. S. Department of Interior on national petroleum policies, is to study intensively the current import situation for preparation of a formal report and recommendations to the Secretary of the Interior.

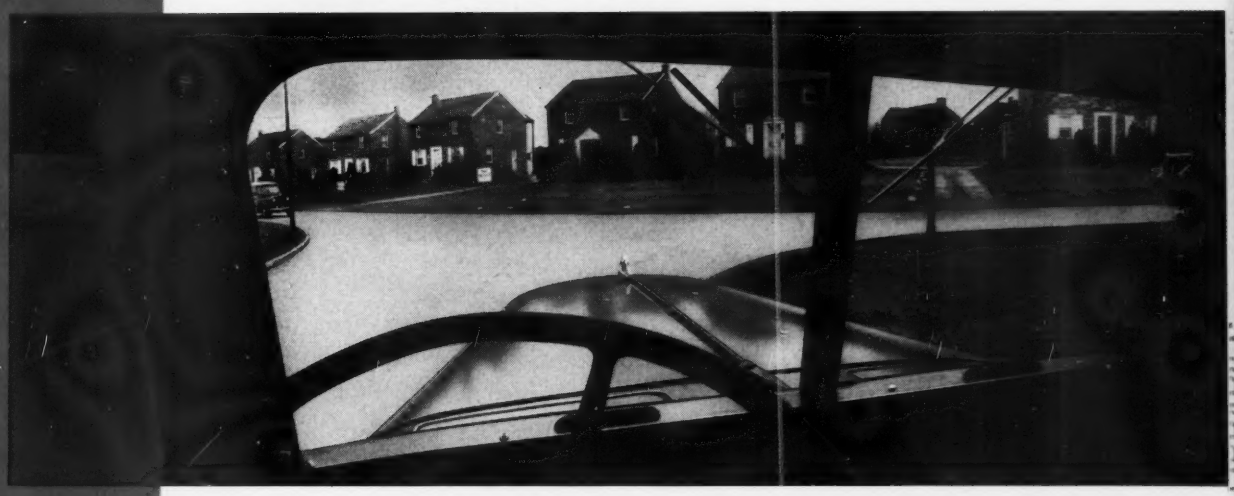
David Thomson, president, David Thomson Associates, Haverford, Pa., has been elected a director of Cyclotherm Corp., Oswego, N. Y., to fill a vacancy on its Board.

Stanley J. Pachyn is one of three added to the field sales organization of Combustion Control Corp., Cambridge 42, Mass. He has been named assistant sales manager with headquarters at the company's Chicago office. *Rody G. Capron* also joins the organization as West Coast Sales Manager with headquarters in San Francisco and *Dana Fisher* has moved from the Cambridge sales office to increase the staff of the New York sales office.

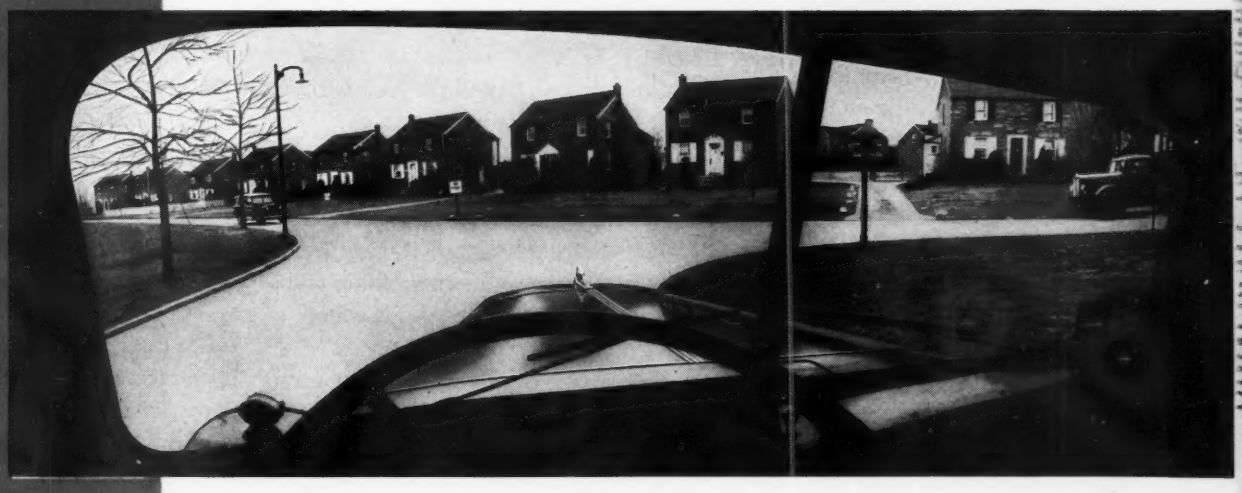
ALL NEW!

—from Curved Windshield to Full-Focus Instrument Panel

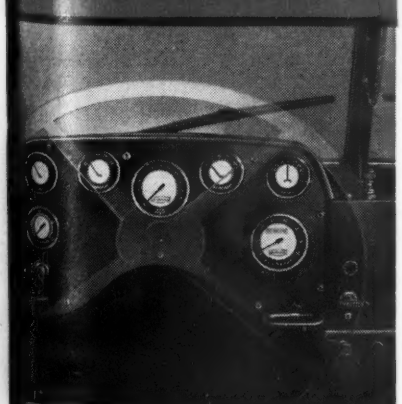
AUTOCAR DRIVER CAB



Compare these two views. Normal view from conventional cab shows how narrow vision puts driver under strain. He must be continually on the move—trying to bring more area within his line of vision.



Here is the view from the Autocar Driver Cab. Driver's view is high, wide and handsome—with 56 percent more glass in the windshield, as well as wider windows. Means less strain, greater safety.



NEW . . . Full-Focus instrument panel

All instruments are grouped in front of the driver, where he can easily see them. The Autocar Driver Cab drives from the driver's seat.

The Autocar Driver Cab is all new, and every improvement is important safety-wise. The new all-welded frame is stronger without added weight. There is increased window area to reduce driving strain; greater width to give more freedom for the driver's left arm, hand and leg. The new cowl ventilators can be left open in a rainstorm to prevent windows from fogging up . . . the baffle keeps water out. The new "Full-Adjust" driver's seat fits any operator's best driving posture. Autocar engineers have gone all out to promote good driving by building a cab that is tops for comfort, convenience and safety.

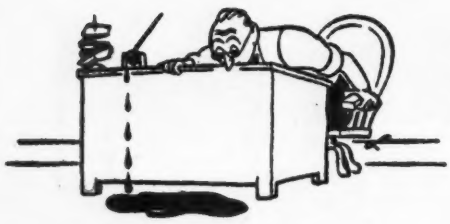
Send for booklet describing all the features of the Autocar Driver Cab

AUTOCAR TRUCKS

THEY COST LESS, BECAUSE THEY DO MORE WORK

The Autocar Company, Ardmore, Pa. • Established 1897
Factory Branches and Distributors from Coast to Coast

UNIVERSITY OF MICHIGAN LIBRARIES



Editorial Leaks

This July issue is an experiment. Nearly all of the main feature articles deal with heavy oil equipment and markets, or at least with non-residential oilburning. One-third of FUELOIL & OIL HEAT'S readers sell either heavy equipment or heavy oil and they have often asked us to give more coverage to their problems.

You as a reader may have no immediate dollar interest in heavy oil or burners, yet you will find the articles instructive and useful to bring you a better knowledge of oilburning in general, and it is entirely possible that you will discover ideas that point to opportunities in your neighborhood.

A satisfactory commercial or industrial installation can favorably impress a lot of employees in the establishment, not only with the happy results of oilheating but also with your skill in handling it.

◈

Consumers have money to spend. Disposable income, which means personal income after taxes are deducted, is running at an annual rate nine billion dollars above last year. But people are also saving money at an annual rate four billion dollars above 1949. So half of the extra income goes into the old sock.

What a happy hunting ground for hard working salesmen who deal in things that genuinely enhance the daily life of the buyer, like oilburners.

◈

With some two dozen of the smaller or marginal refineries in Texas shut down, the Texas Railroad Commission has been conducting special hearings to review the idea of prorating natural gas as well as oil. These out of the way refiners can't pay $2.65 for crude and make a profit at today's prices for products.

Texans are coming to recognize that the more cheap gas sent out to displace heating oil the harder to hold the long supported $2.65 crude level.

On the other side of the picture, a New York major oil executive told the editor that the oilheating industry has actually been blessed by the country having had enough natural gas to take part of the automatic heating load since the war. With virtually no one wanting coal in new homes or new heating plants, he feels sure that oil alone couldn't have handled the load without a lot more industry expansion and much higher fueloil prices.

If the two million gas burners installed since the war had been additional oilburners, the oil industry would have had to invest another billion and a quarter dollars in physical facilities to provide the fuel.

Take your choice of the two viewpoints.

◈

If you're an average man in good health, you produce in eight hours of work about one-quarter horsepower, according to calculations reached in a recent study by F. G. Shoemaker, consulting engineer of General Motors.

The quarter horsepower, Shoemaker found, is equivalent to carrying 396 bags of cement up a 100-foot hill over an eight hour period . . . an amount of work equal to the energy in a third of a pint of fueloil. On this basis, one gallon of fueloil equals 64 man-hours, about two cents per day per man in terms of fuel.

Liquid hydrocarbons, Shoemaker declares, are the most concentrated form of power now available.

However, as a machine, man does have good points. He is a complete, self-contained and totally enclosed power plant, available in a variety of sizes and reproducible in quantity. He is relatively long lived, has most major components in duplicate, and science is making astonishing strides toward spare parts.

Man is weatherproof, amphibious, operates on a wide variety of fuels, enjoys thermostatically controlled temperatures, circulating fluid heat, evaporative cooling, sealed lubricated bearings, audio and optical direction and range finders, sound and sight recording, audio and visual communication and is equipped with an astonishingly efficient automatic control called a brain.

It is this brain that gives man a unique advantage over other types of power plants, enabling him to coordinate the capabilities of his superior in most other respects . . . the work-producing machines.

"Listen, Chief—at six bucks a week I can afford to tell you it's old, corny and was very badly told!"

"Bacon again! Why can't you be like other husbands, and bring home a pay envelope?"

HOW MANY SALES ARE YOU LOSING OVER THE FENCE?

How often neighborly chats get around to the subject of home heating . . . kinds of fuel . . . convenience . . . and servicing!

Many times it's over the back fence that reputations are made or ruined. Make certain that your services are so good that this word-of-mouth advertising is in your favor! Otherwise, a lot of business that you should have will be going to competition.

Gas heat may take the business. Or it may be a progressive oil dealer who uses VENTALARM Signals. Whichever it is, you can be sure that competitions' salesmen are talking CLEAN, CONVENIENT, CAREFREE delivery of fuel.

Don't let back-yard gossip take business away from you. Plan now to give your customers, both old and new, VENTALARM Automatic Oil Delivery. Only with this whistling tank fill signal can you promise safe fills, no spills, complete customer freedom from fuel delivery worries.

Write today for more information on VENTALARM Signal . . . already the answer to oil delivery problems for over 4000 major and independent companies.

40 models for new and old tanks
available at your regular Supply House.

Low cost direct mail literature available for your use in contacting your customer accounts. Ask us for samples.

SCULLY SIGNAL COMPANY
76 First Street, Cambridge 41, Mass.

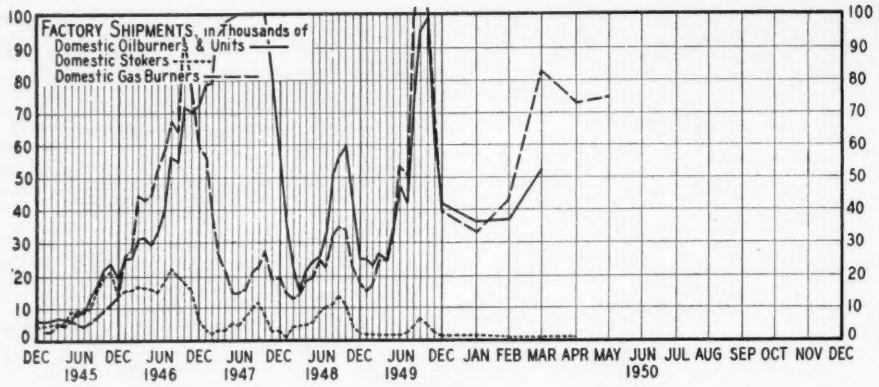
VENTALARM Signal
is fully protected by U. S. and Foreign patents.

Canadian Licensee:
EMPIRE BRASS MFG. Co., LTD., London, Ontario.

VENTALARM®
WHISTLING TANK FILL SIGNAL

fuel oil & oil heat

UNIVERSITY OF MICHIGAN LIBRARIES

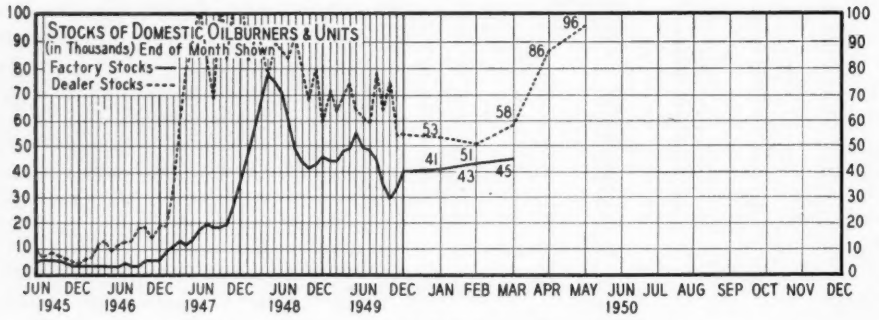

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
Domestic Gas Burners
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1945 1946 1947 1948 1949 1950

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 152 reporting to Census Bureau, FUELOIL & OIL HEAT'S estimates of shipments are:

	APRIL			FOUR MONTHS		
	1950	*1949*	*Percent Change*	*1950*	*1949*	*Percent Change*
Conversion	34,982	19,019	+ 83.9	126,873	76,145	+ 66.6
Boiler units	4,336	2,334	+ 85.8	15,465	8,003	+ 93.2
Furnace units	7,052	3,677	+ 91.8	29,960	15,547	+ 92.7
All Domestic	46,370	25,030	+ 85.3	172,298	99,695	+ 72.8
Commercial	2,268	1,729	+ 31.2	8,383	7,036	+ 19.1
Total	48,638	26,759	+ 81.8	180,681	106,731	+ 69.3



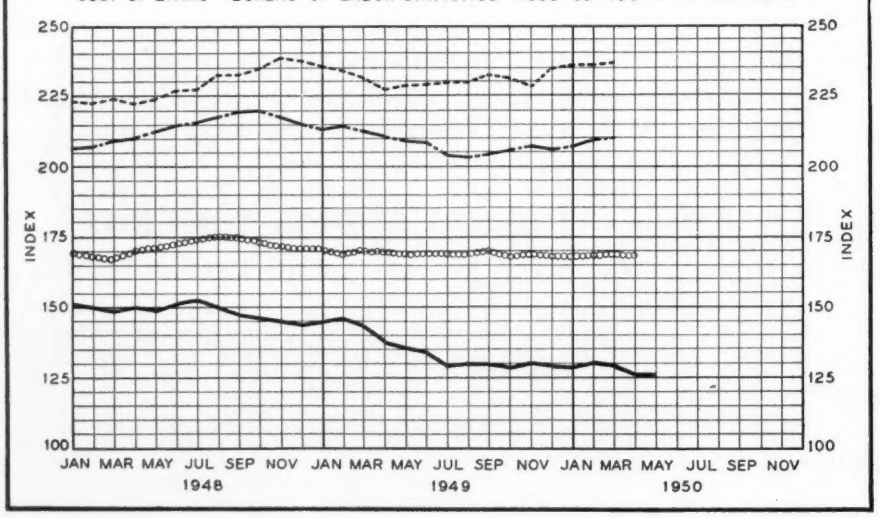
May Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
May Aver.	$306	$644	$567
April Aver.	304	652	566

Price Index: Conversion Burners: January 1940 is 100%

	WHOLESALE				RETAIL		
May	126.6	Six months ago	128.2	May	126.4	Six months ago	130.0
April	121.6	Year ago	131.6	April	126.3	Year ago	134.6

OILBURNER PRICES COMPARED TO GENERAL INDEXES


OILBURNER PRICES – RETAIL CONVERSION BURNER – JAN. 1940 = 100
INDIVIDUAL INCOMES – BUREAU OF LABOR STATISTICS – 1939 = 100
CONSTRUCTION COSTS – RESIDENTIAL – DEPT. OF COMMERCE – 1939 = 100
COST OF LIVING – BUREAU OF LABOR STATISTICS – 1935-39 = 100
INDEX
JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV
1948 1949 1950

Oilheating Trends

INSTALLATIONS OF DOMESTIC oilburners and units during May are estimated at 66,855, a gain of just about 50% over the 44,621 installed in the same month of 1949.

Totals for the first five months of the year were 203,900 this year and 141,689 last year, registering a gain of 44%.

May installations were divided: New homes 16,963; Replacements of old oilburners 6,382; Conversions from other fuels 43,510. This same breakdown for the full five months of 1950 was: New homes 57,570; Replacements of old oilburners 30,600; Conversions from other fuels 115,730.

It is early to speculate on what these figures mean to the year as a whole but it is safe to say that if this gain rate of 44% were to be continued throughout the balance of the year the total would reach 885,000 or approximately the same number as were installed in 1947, the industry's all time peak. There are some reasons to anticipate an even greater growth since factory shipments during the first four months of this year were approximately 70% higher than in the same 1949 period.

It is important that the oil industry be alerted at this time to the probability that the distillate heating oil demand next winter, including weather adjustments, could very well run as high as 20% above the demands of the 1949-50 heating season. If the year's total of installations should turn out to be around 885,000 following the present rate of industry growth, not more than 115,000 of this number could be offset as replacements of old oilburners or by losses to other fuels. That would leave 760,000 as a net gain in number of oil customers.

Added to the 4,490,000 domestic oilburners in use at the start of this year the rise on that basis would be 17%. Even after recognizing that the average new fueloil customer uses only 5/6 as much as the average old customer we would still have to prepare for a 14% rise in demand due to the increase in customers alone. Then, after two mild winters the oil industry should be prepared for a more normal one next season, which would mean that to be on the safe side an overall total of 20% rise in de-

AMERICAN-Standard

First in heating . . . first in plumbing

A handsome NEW addition to a famous line

■ As efficient as it is handsome, this brand new basement type winter air conditioner is quality built throughout. And it's made in two sizes — 100,000 and 120,000 Btu capacity at register—to meet the heating requirements of small and medium size homes. So you can easily make the oil fired Winterway Winter Air Conditioner one of your most popular sellers.

The Winterway has a sturdy steel heating element with wrap-around type radiator that completely encircles the shell. Electric welded seams are absolutely leakproof. The flue can be located on either side, since knockouts are provided on both side panels of the jacket. This permits unusual flexibility in locating the unit, as well as shorter flue pipe connections. Solid base pan with channel stiffeners and leveling screws facilitates installation on uneven floors and eliminates need for grouting at floor line. A special flange model Arcoflame Oil Burner is coordinated with the Winterway for peak results. However, the Winterway is also available without burner.

For more information about this new winter air conditioner and other Sunbeam units by American-Standard, contact your Wholesale Distributor. **American Radiator & Standard Sanitary Corporation**, P. O. Box 1226, Pittsburgh 30, Pennsylvania.

LOOK FOR THIS MARK OF MERIT

Serving home and industry

AMERICAN-STANDARD · AMERICAN BLOWER · CHURCH SEATS · DETROIT LUBRICATOR · KEWANEE BOILERS · ROSS HEATER · TONAWANDA IRON

mand should be anticipated. The fact that the oil industry thus far is not working in that direction is shown by present distillate heating oil stocks being much lower than they were a year ago.

Refinery prices of No. 2 oil are so far out of line with gasoline prices that there is no incentive to make any more fueloil than necessary. Just how this will be corrected is anybody's guess, but it is rather elementary that if gasoline does not come down in price fueloil will have to go up to stimulate production of the quantities needed. There is plenty of capacity at every level of the oil industry to take care of any imaginable growth in fueloil demand if the economics of the situation can be adjusted.

BURNER STOCKS: On June 1 stocks of domestic oilburners and units in the hands of dealers were 96,188, the highest point in the history of the industry. The reason for this stock piling is obvious . . . dealers in general expect a strong year and are preparing for it. This high stock position more or less offsets the difference in gain rates between factory shipments and actual installations up to now. Factory stocks on March 31, the latest available data, were 44,876.

BURNER SALES ACTIVITY: Among all reporting dealers 66% say that they have made preparations for stronger burner sales programs this summer than they had last year; 2% expect to be less active and the remaining 32% will put forth about the same amount of effort. One measure of this added activity is the fact that the reporting group at the start of June employed 36% more full time oilburner salesmen than it had on the same date of 1949. The indication is that the industry as a whole had on that date about 11,300 oilburner salesmen compared with 8,200 a year ago.

A feeling of urgency on the part of fueloil companies to sell all of the oilburners they can before gas competition gets stronger in their markets was expressed by 48% of the reporting marketers. Geographically, 61% of New England dealers expressed this viewpoint, 50% of those in Mid-Atlantic states, 33% in the South, 38% in the Midwest, and 50% on the Pacific Coast.

Promotional programs on a group basis are planned for this summer in 16% of the markets heard from this month. Again the geographic variation is significant. The New England figure is 9%, Mid-Atlantic 25%, Midwest 17%, with the South and the Pacific areas showing no significant intentions in this direction. Asked the basis of individual company contributions to the group programs, it is obvious that in a good many markets this is still in the negotiating stage. Two cities reported taking contributions from their fueloil marketers on the basis of 1/20¢ per gallon. One other city reported contribu-

(Continued on page 158)

Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
May		5 MONTHS			May		5 MONTHS	
1950	1949	1950	1949		1950	1949	1950	1949
67	42	271	135	Albany, N. Y.	..	..	..	..
342	405	1742	1726	Baltimore, Md.	540	143	2692	704
..	..	..	..	Binghamton, N. Y.	18	10	42	45
..	..	..	..	Bloomfield, N. J.	17	10	50	24
..	425	..	1545	Boston, Mass.	57	99	143	144
88	39	329	241	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	92	29	311	112
1	..	10	..	Columbus, O.	..	..	..	..
..	..	..	..	Des Moines, Ia.	192	133	712	416
86	708	457	3274	Detroit, Mich.	1362	1167	6742	3841
108	40	212	175	Elizabeth, N. J.	9	4	28	18
29	25	175	96	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	36	18	154	67
..	..	..	..	Hackensack, N. J.	17	6	90	21
101	89	651	465	Hartford, Conn.	..	..	..	..
..	..	..	..	Hudson County, N. J.	..	..	..	..
76	38	196	94	Irvington, N. J.	6	2	26	11
..	..	..	..	Lynn, Mass.	20	24	67	63
..	35	..	104	Meriden, Conn.	..	..	..	..
313	256	1055	1063	Milwaukee, Wisc.	424	211	1367	723
39	51	284	299	Minneapolis, Minn.	246	191	778	506
43	27	105	76	Montclair, N. J.	..	..	..	..
..	..	..	..	Morristown, N. J.	8	..	..	..
49	40	160	112	Mt. Vernon, N. Y.	..	..	..	..
265	144	670	406	Newark, N. J.	..	..	..	..
50	102	488	408	New Bedford, Mass.	..	..	..	..
47	20	157	107	New Haven, Conn.	..	..	..	..
..	..	..	..	New Orleans, La.	..	..	..	..
32	17	113	84	New Rochelle, N. Y.	52	5	90	25
3158	1848	10456	7733	New York City (total)	..	..	..	..
2576	1397	7974	5849	Brooklyn-Queens	..	..	..	..
582	451	2482	1884	Manhattan, Bronx, Rchd	..	..	..	..
61	68	386	488	Norfolk, Va.	123	140	611	268
..	..	..	..	Oakland, Calif.	..	..	..	..
..	38	..	279	Omaha, Neb.	..	76	..	211
34	17	81	48	Orange, N. J.	5	0	8	1
64	48	134	111	Passaic, N. J.	..	..	..	..
155	97	361	220	Paterson, N. J.	15	11	80	44
1038	720	3252	2144	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	16	7	63	28
43	13	167	105	Portland, Me.	19	18	61	47
29	459	1532	2410	Portland, Ore.	274	192	954	836
15	11	58	42	Poughkeepsie, N. Y.	..	..	..	..
65	29	270	201	Providence, R. I.	34	17	134	60
..	..	..	..	Reading, Penna.	13	4	38	18
103	33	401	334	Richmond, Va.	80	46	331	311
112	..	518	..	Roanoke, Va.	..	..	..	..
349	182	1003	732	Rochester, N. Y.	..	..	..	..
..	24	..	78	Rockville Center, N. Y.	..	16	..	44
47	11	140	101	Salem, Mass.	15	15	41	47
17	56	204	484	St. Louis, Mo.	134	56	456	185
96	116	439	614	St. Paul, Minn.	298	79	660	250
49	24	306	184	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	324	155	1168	616
..	..	..	..	Springfield, Mass.	62	88	285	208
72	16	413	153	Stamford, Conn.	..	..	..	..
12	62	69	166	Syracuse, N. Y.	138	32	278	133
..	..	..	..	Trenton, N. J.	13	5	37	52
..	..	..	..	Utica, N. Y.	29	14	58	24
81	17	668	351	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	54	11	139	47
42	17	105	61	White Plains, N. Y.	7	4	42	31
..	77	..	318	Wilmington, Del.	36	3	150	39
..	110	..	466	Worcester, Mass.	..	..	..	..
102	54	249	142	Yonkers, N. Y.	..	..	..	..
10525	7753	38215	33318	*Totals*	4772	2949	18878	9965
+35.7		+14.6		*Percent Change*	+61.8		+89.4	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

Never Before SUCH POWER . . .
Never Before SUCH VALUE . . .
in Chevrolet P•L Advance-Design Trucks

America has learned to expect the most from Chevrolet. And now the line that outsells all others brings truck users still more: More power—to make light of maximum loads. More value—to make sure of minimum costs.

Everywhere—on every kind of job, every kind of road—these new P•L models are proving themselves the greatest of a great line. Yet Chevrolet trucks are notably low in price and in operating and maintenance costs. No wonder that year after year Chevrolet trucks are the Nation's Favorite!

CHEVROLET MOTOR DIVISION, *General Motors Corporation*
DETROIT 2, MICHIGAN

LEADING WITH ALL THESE PLUS FEATURES:

• TWO GREAT VALVE-IN-HEAD ENGINES: the New 105-h.p. Load-Master and the Improved 92-h.p. Thrift-Master—to give you greater power per gallon, lower cost per load • THE NEW POWER-JET CARBURETOR: smoother, quicker acceleration response • DIAPHRAGM SPRING CLUTCH for easy action engagement • SYNCHRO-MESH TRANSMISSIONS for fast, smooth shifting • HYPOID REAR AXLES—5 times more durable than spiral bevel type • DOUBLE-ARTICULATED BRAKES—for complete driver control • WIDE-BASE WHEELS for increased tire mileage • ADVANCE-DESIGN STYLING with the "Cab that Breathes" • BALL-TYPE STEERING for easier handling • UNIT-DESIGN BODIES—precision built.

CHEVROLET
P*•L*
ADVANCE-DESIGN TRUCKS

P*opularity L*eaders
Chevrolet trucks outsell all others. In every postwar year truck users have bought more Chevrolets than any other make—*proof* of the owner satisfaction they have earned throughout the years.

P*erformance L*eaders
The new Chevrolet P•L trucks give you high pulling power over a wide range of usable road speeds—and on the straightaway, high acceleration to cut down total trip time.

P*ayload L*eaders The rugged construction and all-around economy of Chevrolet P•L trucks cut operating and repair costs—let you deliver the goods with real reductions in cost per ton per mile.

P*rice L*eaders The Chevrolet truck line is the very lowest priced line in the field—saves on initial cost. What's more P•L trucks give owners dollar and cents savings in maintenance and operation.

CHEVROLET

Government Influences on Fuels

by
Milburn Petty

WASHINGTON—An oil price investigation that may extend back to the well seems inevitable, reaching its climax just about election time this fall.

Fueloil and kerosene prices have been included in what started as an inquiry into the "causes" of gasoline price rises over the past five years, proposed by Senator Ferguson (R) of Michigan after a similar investigation had been launched by Governor Williams (D) of Michigan.

When all the big oil companies follow one company's price advance, "it smells of monopolistic practices and manipulations," Ferguson told the Senate in urging that the Senate Judiciary Committee be given $50,000 to make the investigation and recommend any additional antitrust legislation, if found necessary.

The committee enthusiastically approved the idea, broadening it to include fueloil and kerosene prices. A series of field hearings was suggested to determine "whether there exists, in the petroleum industry, situations or circumstances not justifiably attributable to the working of legitimate economic factors."

Such a broad statement of objectives would allow the committee to go as far afield as it likes.

This oil price probe could be included in the agenda of the fuels investigative commission which the coal people are pressing for. But the coal men are not interested in showing that oil prices are "too high." Quite the contrary. They favor a higher oil tariff or most anything that will push oil prices up nearer those of coal.

Coal Wants Gas Use Restricted

Right now, the coal interests have a truce with one segment of the petroleum industry — the independent producers (IPAA) with whom they have joined forces to fight imported oil—so they have soft-pedalled their talk of "equalizing" oil-coal competition in the fuel market. Coal's war against gas, however, continues without letup.

Even though prices to domestic gas consumers are more than five times those charged industrial users, "neither is paying what the gas is worth," according to John D. Battle, National Coal Association's executive vice president.

Battle, speaking at the New York coal dealers convention, went on to say that the supply of gas was limited to a "very few decades at best." So, the use of this fuel should be restricted to "high and important uses" instead of being promoted in markets that are traditionally served by the coal industry.

The high cost of production and high freight rates, according to Battle, prevent coal from meeting gas competition in some areas.

"It can be met in many places, however," Battle said, "and this means, when a city is exposed to a new pipeline, that coal, railroad people and those employed therein must unite and organize their forces in opposition and fight to keep it out. It can be done but it requires far more than letter writing. It requires action and money."

New Status for Gas Pipelines?

Discussing steps that gas opponents can take, Battle noted that there is a movement "toward the separation of pipeline transportation as such from the sale of gas as such; in other words, there are some people who feel that these pipelines should be operated as common carriers and not as an integrated unit."

It is not clear what advantages would accrue to competing fuels — but one thing is certain, the pipelines themselves are deadset against the common carrier proposals (such as the bill now pending to place gas lines under the ICC).

During the Federal Power Commission's hearings on a proposed new line to California, an independent intervened to ask that the FPC require 25% to 50% of the line's capacity be allocated for transporting gas belonging to other shippers than the applicant companies. The pipelines objected that this would be impractical.

Interior Secretary Chapman moved in, writing the FPC in support of the independents' plea. He said Interior Department, to enforce a law that any pipeline across public lands must be a common carrier, would hereafter require an applicant for a right-of-way to stipulate that it would transport oil or gas as a common carrier.

OGD Opposes Curb on Imports

Chapman was all set to call a conference of the oil importers, looking to the development of a voluntary cutback agreement. But he suddenly cooled off after receiving a memorandum from Director Stewart of the Oil and Gas Division. Stewart warned that the industry does not fully realize the huge demand increase that is coming. So, he urged Chapman not to take any action to reduce imports.

Instead, the OGD director recommended, state production allowables be increased and refiners encouraged to run more crude—or else there may be shortages of gasoline and fueloil.

Chapman being particularly sensitive to even a whisper of "oil shortage" in an election year, willingly let the congressional committees take over.

Voluntary Agreements Favored

After a year-long investigation, the House Small Business Committee has decided that recent levels of oil imports have been "excessive" but they are opposed to legislative restrictions. Instead, they want Congress to authorize the President to call an industry-wide conference for a voluntary agreement to maintain imports at "reasonable" levels and to provide antitrust law clearance for such joint action.

An opposite approach is expected to be recommended by Senator Neely (D) of West Virginia who was primarily interested in the effect on the coal market. His group is likely to suggest a $1.05 oil tariff and import quotas.

Oil Tariff Hike Coming in '51

Under the Mexican agreement, imports of crude and fueloil—in unlimited amounts—could come in at the reduced rate of 10½¢ per barrel. With its cancellation, next January 1, the Venezuelan agreement goes back in force.

This means that imports, up to an amount equal to 5% of the previous year's refinery runs, come in at 10½¢ while the remainder (about 500,000 B/D) will have to pay a 21¢ tax.

Residual Oils, Price and Prospect

SOME ECONOMIC OBSERVATIONS RELATED TO YIELDS, IMPORTS, COMPETITION

by
Joseph H. Salmon*

SINCE THE WAR END, residual oil has played a rather dramatic role in the fuel economy of the nation. Price rises exceeding 100% have occurred followed by precipitous declines, chiefly in response to supply and demand fluctuations. Coal strikes, rapid progress in railroad dieselization, catalytic cracking and increased imports have all influenced significantly the residual oil picture during the post war era.

It will perhaps be helpful to review the demand, supply and price experience over the past few years as a background for the future outlook for residual oils.

Viewing the 1946-1949 period we find that except for a slight bulge in consumption during 1947, over-all usage of residual oils in the United States has varied within rather narrow annual limits—between 1,350,000 and 1,400,000 barrels daily. In 1947 domestic consumption rose to 1,426,000 barrels daily. It is estimated that 1950 consumption in the United States will be about 1,450,000 barrels per day.

It is significant, however, that while the national consumption has been relatively uniform, marked regional fluctuations have occurred. The Eastern Seaboard has witnessed a sharp upsurge in consumption during 1947-1950 due princpially to the substitution of residuals for coal in industrial and utility plants and for heating. The reason for this is quite apparent when we compare the equivalent cost of residual fuel and bituminous coal for industrial purposes in chart #1 (page 37). Strikes and lack of assurance of coal supplies as well as the reduced labor cost and improved efficiency attendant upon residual oil combustion added fuel to the fire of conversion.

*Oil industry consultant, New York, and formerly economic executive for Shell.

In the Middle West there has been little change in over-all consumption of residuals. While the dieselization of the railroads has reduced residual use for this service, there has been a compensating increase in industrial demand due principally to conversion from coal.

On the Pacific Coast a marked reduction occurred in the residual demand due in the main to railroad dieselization but influenced to some extent by the improved availability of natural gas following the completion of a line from West Texas-New Mexico. It is significant that the 1949 railroad demand was only 50% of the 1946 consumption of 112,000 barrels per day.

Table I summarizes the demand by major areas—California and East of California over the past 5 years in thousands of barrels daily.

On the supply side of the picture we find that despite the fact that refinery operations increased substantially during the past 5 years, there was an over-all reduction in residual oil manufactured. This was the result of the extensive application of catalytic cracking to refining operations—catalytic cracking yields considerably less residual fuel than thermal cracking which it generally displaces.

A summary of the U. S. residual supply picture for the years 1945 through 1949 is shown in Table II.

It is interesting to note the sizable deficiency in supplies which would have prevailed if no imports had been available to supplement domestic supplies.

The reduction of yields has been particularly noteworthy in the area East of California where imports have filled the gap in supplies.

The changes in the supply/demand relationships during the past several years are best reflected in the inventory fluctuations, as summarized below for the areas East of California and California:

	(Millions of Barrels)	
	East of California	*California*
End 1945	23.9	17.8
End 1946	24.7	22.4
End 1947	25.8	21.3
End 1948	39.4	37.6
End 1949	26.2	34.0
June 3, 1950	20.9	18.1

It will be noted that East of California there have been only minor changes of inventory since 1945 except in 1948 when petroleum operations were not adjusted to the slackening growth in de-

TABLE I

RESIDUAL DEMAND

	1945	*1946*	*1947*	*1948*	*1949*	*Change 1949 over 1945*
California	490 MBD	363 MBD	379 MBD	326 MBD	311 MBD	—36.5%
East of California	980	977	1071	1077	1081	+10.3%
	1470	1340	1450	1403	1392	— 2.7%

TABLE II

WHERE RESIDUALS CAME FROM

	1945	*1946*	*1947*	*1948*	*1949*	
	(Thousands of Barrels Daily)					
Total Domestic Supplies	1343	1245	1301	1339	1177	
Total Demand	1470	1340	1450	1403	1392	
Deficiency Without Imports	127	95	149	64	215	
Imports	87	122	149	145	204	
						Yield Reduction % 1949 vs. 1945
U. S. Refinery Yield %	27.3	24.9	24.2	23.0	21.8	20.0
California " %	47.5	41.8	38.2	38.9	39.8	16.3
E. of California " %	22.8	21.6	21.4	20.1	18.3	19.8

mand and inventories accumulated substantially. Since 1948 inventories have shown a steady decline even in the face of greatly stepped up imports and are now little if any above minimum working levels.

In California, however, inventories continued to accumulate until the large intercoastal residual movement was initiated in the fall of 1949; since then it is estimated that over sixteen million barrels of residuals have been transported to the East Coast to meet increased demands. California stocks are now below any point since 1945.

The price history of residual oils during recent years is quite interesting to observe. Chart #2, below, indicates price in the various principal markets since 1945. The sharp rise in residual trends during 1946 and 1947 was occasioned by increases in crude oil prices and a relatively balanced supply and demand position. Toward the end of 1948 prices dropped sharply due to the rapid accumulation of inventories which occurred during this year. The price decline continued until the middle of 1949 when demand began to pick up, due principally to the then prevailing favorable price relationship of residual oil to coal, as will be noted on Chart #1. Coal prices increased steadily since the war end as a result of wage and freight increases and royalty payments to support pension funds. In 1949 numerous utility and large industrial users found it economical to convert from coal to residual oil. The price factor alone was sufficient to justify this change. The assurance of supply in the face of periodic coal strikes certainly accelerated the process of conversion.

Since the middle of 1949 residual oil prices have firmed up to somewhat closer to (but still below for most users) prevailing coal prices.

Prospects

The outlook for the ensuing 3-5 years is for little change in total consumption of residual fuels in the U. S. In the Midwest and the Pacific coast some further decline in demand is possible, while on the Eastern Seaboard a small increase or leveling in consumption is anticipated.

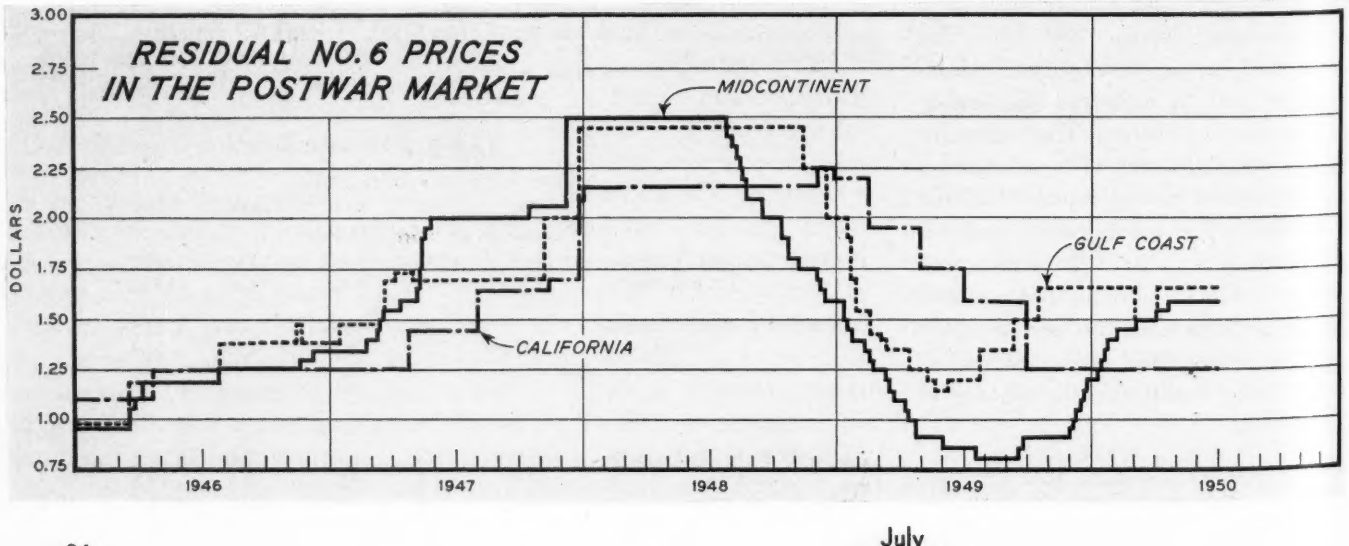
When considering the future demand for residual in the face of railroad dieselization and natural gas expansion, we must not overlook the fact that ours is an expanding economy with ever increasing energy demands—to serve a growing population which is continually using more and more mechanical power. It is, therefore, possible to maintain residual market demand, as appears likely on the east coast, even in the face of increased gas and diesel volume.

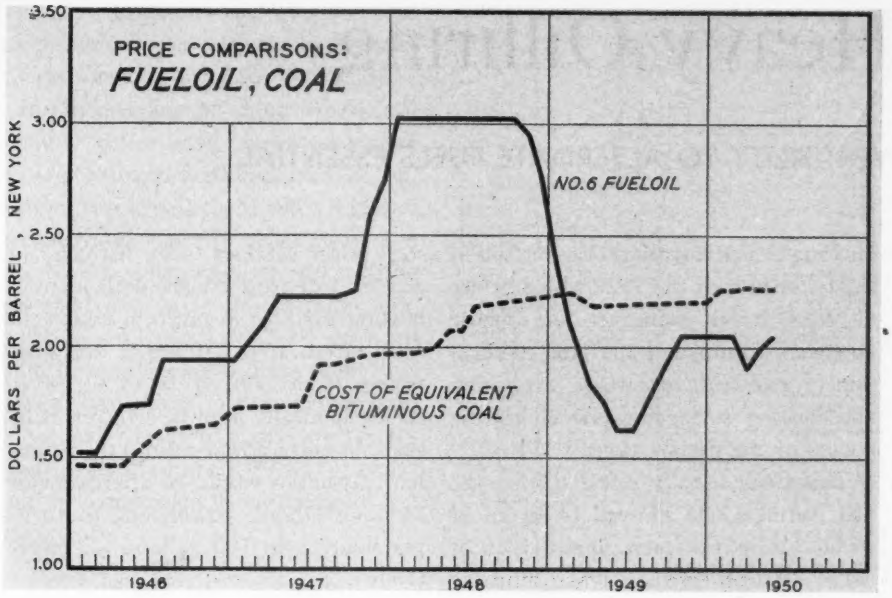
The level of industrial activity will of course influence residual demand in all areas. While residual consumption on the Eastern Seaboard is expected to hold its own or perhaps grow slightly over the next 3 to 5 years, a recession in business would temporarily cause a decline in consumption, with a rebound when industrial activity revived.

One of the major factors which will continue to influence the residual oil picture is the railroad dieselization program. This will continue because of the substantial economies which diesel operation makes possible over steam locomotives, whether fueled by residuals or coal. It is noteworthy that one gallon of diesel fuel is equal to at least 4 gallons of residual fuel for general railroad services and fuel economies of a somewhat higher order are possible by substituting diesel for coal. In addition to the direct fuel economies, diesel locomotives enjoy such other significant advantages as reduced operating labor, improved availability for service, reduced maintenance costs as well as lower capital cost. It is inevitable that diesel fuel will capture a larger share of the railroad business throughout the U. S. While unreasonable labor restrictions on diesel operated engines may be imposed or a highly efficient steam turbine locomotive operated on coal or residual oil may be developed, it is not considered likely that diesel growth will be impaired materially during the next 5 years.

The rapid expansion of natural gas pipe lines throughout the U. S. poses the question as to the probable effect of natural gas competition in the principal fuel markets.

It is interesting to note that by 1952 the natural gas movement to the East Coast is now estimated to increase by 1.5 billion cu. ft. per day, equivalent to approximately 250,000 barrels per day of residual fuel. How much coal, how much kerosene and distillate oil and how much residual oil will actually be replaced will depend on such factors as the economics of gas manufacture from coal and oil versus blending with natural gas or its use as such, the relative cost of home heating with gas and oil equipment, the greater assurance of uninterrupted supply afforded by oil and gas as compared with coal, the reduced labor cost in industrial installations and greater efficiency of both oil and gas over coal, the aggressiveness of oil and gas





marketing organizations in the growing fuel markets and probably, most important of all—the relative prices of oil, gas and coal.

It has been estimated by others that one half of the additional natural gas to move to the East Coast will replace oil—residual and distillate and the balance coal. Estimates have also been made that perhaps 50% of the oil displacement will affect residuals and the remainder kerosene and distillates. Obviously such estimates are subject to the effect of the factors above enumerated, particularly price and the aggressiveness of the sales organizations. If present price relationships maintain, coal replacement will account for more than 50% of the gas movement and oil will lose correspondingly less.

For the Midwest, estimates have been made that natural gas of the order of 1.25 billion cu. ft. per day additional will be moved into this area over the next 3 years or so, equivalent to about 200,000 barrels per day of residual fuel oil. It is expected, however, that this will occasion little reduction in residual oil consumption as most of the gas will be sold for home heating, thus affecting the prospective growth of kerosene, distillate and coal business.

Additional gas pipe lines are in prospect to serve California and the Pacific Northwest which will affect both distillate and residual oil consumption in these areas. In the northwest particularly, natural gas, probably from Alberta, will capture a share of the fuel markets, both industrial and domestic.

It is anticipated that field natural gas prices over the ensuing 5 year period may be somewhat higher than those which have prevailed (of the order of 6-8¢ per 1,000 cu. ft. in producing areas). Such increases as may occur are not likely to influence greatly the delivered price in the principal consuming markets as the transportation cost usually constitutes the largest factor in the ultimate price to the reselling utility or large industrial consumer. This is particularly true when markets are remote, as they generally are, from natural gas producing areas. For example, the initial price to be paid by the Consolidated Edison Co. in New York, is stated to be 31¢ per thousand cu. ft. which is many times the price paid by the Transcontinental Pipe Line Co. in the field.

At this time, producers of natural gas are quite reluctant to contract for the sale of gas to be moved interstate over an extended period of years, due largely to the uncertainty concerning the extent of Federal regulation of gas prices at the well since the recent veto of the Kerr bill. It is expected, however, that this condition will be clarified with natural gas production adequate to supply the large consuming areas at prices not greatly above those recently prevailing.

In the case of industrial consumers, efforts will be made to provide natural gas at a reduced price during the summer season when the home heating load is at its minimum. Should the arrangement be effective, the industries would generally revert to their normal fuel, coal or oil, during the heating season, when natural gas will command a higher price for home heating. Wherever practicable, however, natural gas transmission line companies will arrange for underground storage in depleted gas or oil fields close to markets to avoid the necessity of selling a substantial quantity of gas during the summer season at sharply reduced prices. In some cases the utility companies will burn gas for power production during the summer season replacing coal and oil, to which they could revert during the heating season.

Viewing the coal industry in the light of its competitive aspects with residual oil, mention has been made that with presently prevailing prices on the Eastern Seaboard, coal is somewhat more expensive on an equivalent basis than residual oil for most industrial consumers. While efforts are being exerted to reduce the cost of coal production by increased mechanization, etc., it should be pointed out that transportation and handling costs will continue to constitute a large part of the ultimate cost to the consumer. There has been no indication to date that the coal labor unions realize the economic effect of their unceasing demands for higher and higher wages and greater security benefits. It is unquestionably the case that coal has already lost a large share of its market due to its relatively higher price than competitive fuels and the periodic strikes. The prospect is that coal prices are not likely to be much, if any, lower during the ensuing 3-5 year period than those presently prevailing, although competitive factors will certainly tend to promote price reductions wherever possible. Under these circumstances, coal business lost to residual oil will not be regained unless oil prices rise materially above present levels.

A very important factor in the residual oil position is of course the extent of heavy oil or residual oil imports. As previously noted imports have increased substantially since the war end and in 1949 residual imports amounted to 204,000 barrels per day. This increase occurred during a period of declining domestic residual supplies, the result of reduced refinery yields.

The outlook for the petroleum industry worldwide is for a potential or actual surplus of petroleum products, in-

(Continued on page 70)

Boilers For Heavy Oilfiring

NEW FIREBOX METHOD; CONVERTIBILITY TO ALTERNATE FUELS ESSENTIAL

by
G. E. Olsen*

WHEN HEAVY OIL INSTALLATIONS began seriously to be considered for commercial and industrial installations during the early 1920's, the oilburner dealer found boiler installations quite different from what he is accustomed to seeing installed today. A survey for conversion to oilfiring usually brought him in contact with boilers of brick set tubular or compact steel tubular types of various designs.

Invariably all had been installed initially for hand-fired coal burning operation. When an owner decided to change to fueloil, the hopeful dealer found himself confronted with an immediate problem of small fire box volume and little height available below the grate level. He peered through the ashpit door and ruefully contemplated the necessity of excavating several feet into the boiler room floor, installing costly brick work and perhaps underpinning and structural work which would by far exceed the cost of the oilburning equipment itself.

No wonder one bewildered dealer confessed he often just stuck the oilburner through the ashpit door, threw in some refractory and hoped for the best.

When one tried to determine the required oilfiring rate, boilers were found to have a variety of catalog ratings, capacities, horse power ratings, and heating surfaces with no uniformity of the ratio of these identifications among the different types.

Recognizing the necessity of establishing trustworthy engineering standards for the benefit not only of steel boiler manufacturers, but also for the benefit of the boiler using public, for architects and engineers and for the variety of industries connected with steel boiler construction and use, the Steel Boiler Institute, (originally known as Steel Heating Boiler Institute) was formed in the latter part of the 1920's by a group of steel boiler manufacturers whose engineers formulated the first codification of standards of ratings, capacities, and heating surfaces for steel heating boilers of the firebox type.

This Code usually referred to as the SBI Rating Code allowed 14 sq. ft. of steam rating for each square foot of boiler heating surface when burning hand-fired coal. Recognizing the ability of a properly designed steel boiler to develop additional capacity from fueloil or when stoker-fired, the SBI Code permitted a boiler rating of 17 sq. ft. of steam rating for each square foot of boiler heating surface or an increase in the steaming capacity of a commercial boiler of approximately 22% as compared to its coal-burning capacity. SBI ratings are now available for catalog publication to all boiler manufacturers who comply with the requirements of the Code, one of which is that the steel boiler to be rated must be manufactured in accordance with the ASME Boiler Construction Code. The U. S. Department of Commerce National Bureau of Standards has set up officially the same essential data contained in the Steel Boiler Institute Code, as Steel Firebox Boilers and Steel Heating Boilers Simplified Practice Recommendation, No. 157-50. The net result of this is that most steel boiler catalogs today list commercial sizes of steel boilers with identical heating surfaces in uniform increments from 129 sq. ft. to 2500 sq. ft. and steam ratings from 2190 sq. ft. to 42,500 sq. ft. mechanically-fired in eighteen boiler sizes. In horse power ratings the equivalent capacities would be approximately 15 to 304 horse power, and in fueloil per hour, 5 to 100 gallons, all respectively.

While most commercial steel boilers for oil fuel operation have been standardized for heating surfaces and ratings, the boilers of some manufacturers might possess design characteristics which conceivably could make a good case for superiority in economy of operation, quick steaming, ease and facility of inspection and cleaning, durability, low cost of maintenance, long life and adaptability to boiler room space and available draft conditions. This can be appreciated by the dealer who knows that several different makes of burners may have the same oil-rate, fan and motor size and be built to identical codes and standards but still have inherent characteristics which justify an appeal for specific consideration on the part of the ultimate user.

Fortunately boilers built to the Steel Boiler Institute Rating Code have been readily convertible from coal to oil and back again during the past ten years,

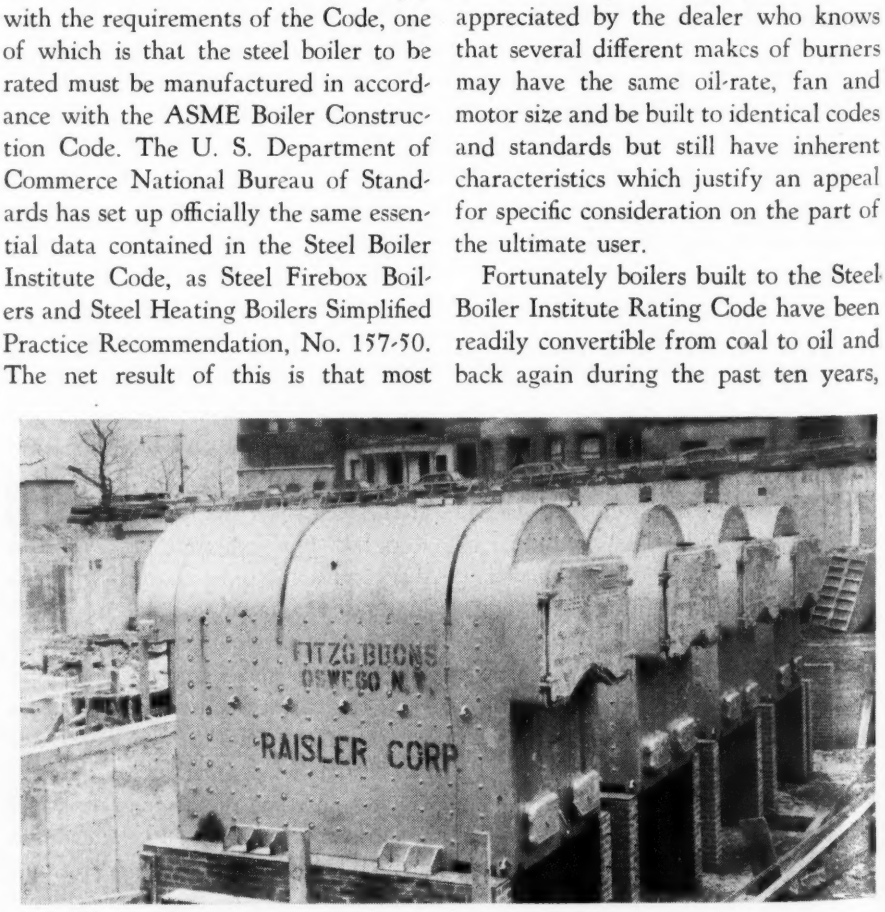


Figure 1. *A modern type of oilburning setting.*

*Vice-president and director, Fitzgibbons Boiler Co., New York.

depending upon the fuel available and the dictates of the government agencies having control during the war years.

Instances come to mind where oilburning boilers were converted during the war to hand-fired coal burning operation. A few years later when it looked as though oil was still years away as a fuel, a change was made to stoker firing and then five years ago to oilburning again. We all recall 1947-48 when oil again became scarce, and the swing was back to coal. Now in the current days when coal has been scarce and costly owing to strikes and other delays beyond control, conversion was made to oil again.

Adaptable to Conversion

Only a boiler that had the requisite firebox volume and dimensional features to make it suited to a variety of fuels and methods of firing could have these changes made and justify the expense involved. If the boiler initially had inadequate firebox volume and height, the cost of excavation to secure the required dimensions would have put a burden of expense on the user in making the switch back and forth to the currently available fuel.

A modern type of oilburning setting in use in a plant of boilers of 42,500 sq. ft. steam rating each is illustrated in Figure 1. Each boiler is 78″ wide and 150″ long in the firebox. Maximum setting width is obtained by supporting each boiler on welded side-brackets resting on a 12″ wide common brick supporting wall, the fireside of which is built flush with the outside shell of the boiler, giving a setting width of 84″ before fire brick installation.

The brick setting height is 72 inches and an oil rate up to 130 gallons per hour is provided for. The vertical distance from the high point of the upwardly arched crown sheet inside the boiler to the floor of the boiler room is 138″. From this dimension approximately 24″ is deducted for the under-hearth air supply and load bearing ventilating tile, giving a net oilburning firebox height of 114″.

Boilers with settings of this type have been installed in many large municipal public and private housing installations in the New York area. One extensive building development has as many as

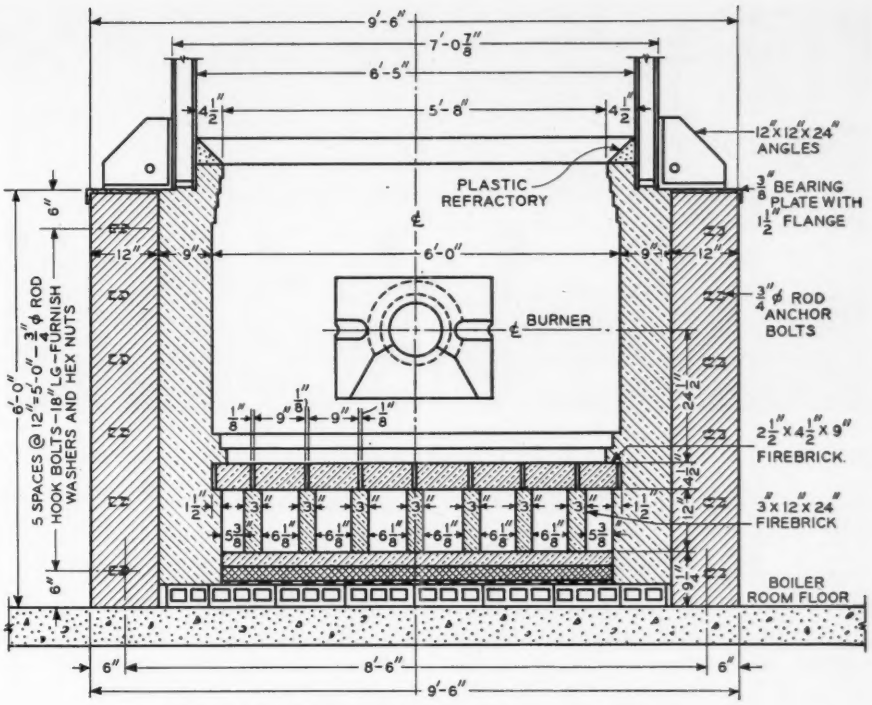


Figure 2. *Construction detail heavy oil setting.*

2650 family units, with an approximate population of 12,000 people in a total building size of 24,000,000 cu. ft. all heated from a single central boiler plant of 2700 boiler horse power, with each individual boiler capable of operating at a maximum oilburning rate of 130 gallons of heavy oil per hour developing 400 boiler horse power.

Construction drawings of a typical heavy oil setting having a capacity of 130 gallons per hour is shown in Figure 2. Slight variations of this setting would depend upon the make of burner used which might change the length and the width and perhaps indicate the need of an arch sprung across the front end of the furnace.

Before the advent of heavy oil burning, the normal boiler room installation in a commercial building or apartment house consisted of a hand-fired coal burning boiler, a domestic hot water storage tank and a small separately fired hot water tank heater. The change to oilburning eliminated the coal storage room and also reduced the size of the boiler room itself.

Another change was the elimination of the hot water storage tank and its accompanying coal fired hot water heater. In their place there came the copper instantaneous domestic hot water heating coil installed just below the water-line in the steel boiler that heated the building. This method of all-year domestic hot water heating has proven generally satisfactory so that in many areas of the country the separate storage tank and separate heater are no longer considered essential boiler room equipment. Coil manufacturers have varying standards for sizing coil capacities. A safe and conservative basis has been found to allow one square foot of copper water-heating surface for every 15 gallons of domestic hot water to be heated through 100° F. rise.

The increasing use of large commercial boiler units with over-all dimensions of 9′ in width, 16′ in length and 11′ in height, gives rise to the problem of rigging such boilers into the boiler room. Boilers of this large capacity are usually rigged over the boiler-room foundation walls at grade-level with immediate setting on the pre-built brick settings, as indicated in Figure 2, and before the building super-structure has advanced beyond that shown. Figure 3 shows a plant of nine oilfired boilers of 42,500 sq. ft. steam rating each, in the process of being skidded onto the boiler foundations shown to the right of the picture. The intervening columns which eventually will rise between every other boiler in the boiler room, would make maneuvering of the boilers difficult, if not impossible, if the installation of the boilers were attempted with the boiler room completed structurally.

When commercial boilers are oper-

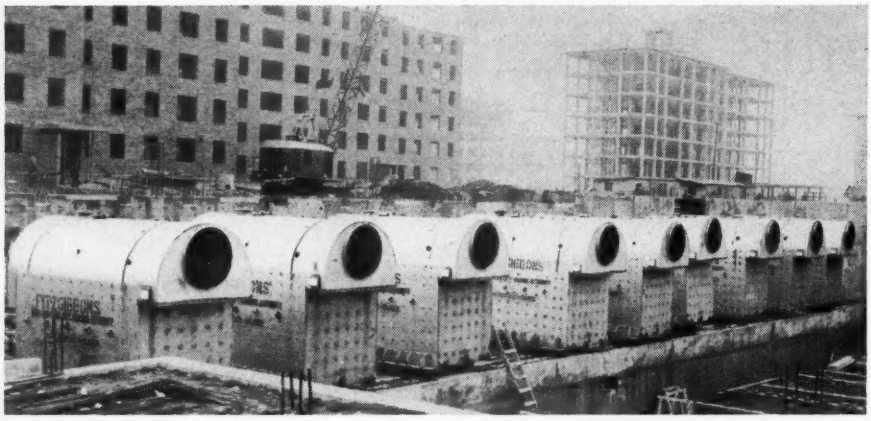


Figure 3. *Nine boilers ready for setting.*

ated at 130 gallons per hour oil-rate, not only must the oilburning setting be properly designed with the requisite firebox volume and refractory surfaces, but the boiler itself must be capable of rapidly transmitting the heat of the products of combustion through the boiler heating surfaces into the water content of the boiler with high efficiency and dryness of steam and with the minimum of draft loss.

When planning indicates the maximum output indicated above is at times required, it is essential that the designer of the boiler plant make sure not only that the firebox can burn the required amount of oil, but that the boiler has the characteristics that will permit it to absorb the heat as fast as it is generated and pass it through the steam nozzle as dry steam.

The efficiency of combustion can be readily predicted and obtained by designing the requisite volume and dimensions into the oilburning setting. The boiler however, is a finished article when delivered to the building and will permit no easy alterations in its design and construction. It is therefore prudent that factors that assure operation at high efficiency and high output be investigated before the installation is made, in preference to holding a post mortem after trouble has arisen.

It has been found that large commercial boilers should have free water circulation in unobstructed internal passageways so that the currents of circulating water can flow in smooth paths over the high heat transmitting surfaces of the firebox directly over the oil flame. The importance of fast water circulation is seen from the fact that many tests have shown that firebox surfaces can transmit ten times as much heat per square foot of heating surface as is transmitted by the same area at the smokebox end of the boiler tubes.

The steam space above the boiler water line should be of ample height and volume to permit unrestricted egress of steam bubbles breaking through the water surface. If boiler circulation is deficient by restriction of smooth flow, it will be found that a heavy overload will give considerable trouble in water boiler line fluctuation and excessive water passing through the steam outlet to cause trouble in the steam lines and in other steam consuming equipment beyond the boiler.

Another characteristic a boiler user should look for in any commercial boiler is the facility provided for inspection and cleaning of all fire surfaces and water surfaces. In many areas where poor water conditions exist, it may be found that sediment and foreign matter will settle in out of the way spaces in the water legs of the boiler or on the crown sheets. Infrequent or difficult cleaning will allow solid masses to accumulate to cause local overheating and leaks or warping of the heating surfaces owing to the inability of water to carry away the heat endeavoring to be transmitted at those places.

Commercial firebox steel boilers are normally made for high pressure steam operation in pressures up to 150 lb. and for higher pressures where specially required. Boilers for high pressure are built either as all riveted boilers or as all welded boilers to the strict requirements of the ASME Boiler Code for these two entirely different methods of construction.

Where riveted construction is used with fueloil firing, it is essential that the heavy mud ring at the bottom of the water legs be properly protected by refractory to prevent direct impingement which might cause excessive expansion and leaks in the unprotected area. Other types of large commercial boilers currently considered for use where special conditions prevail are the Scotch type of boiler where head room is restricted or where excavation would be excessively costly owing to rock or water below the boiler room floor.

The Scotch type of boiler with its cylindrical internal firebox and minimum refractory lining has less than ¼

(*Continued on page 156*)

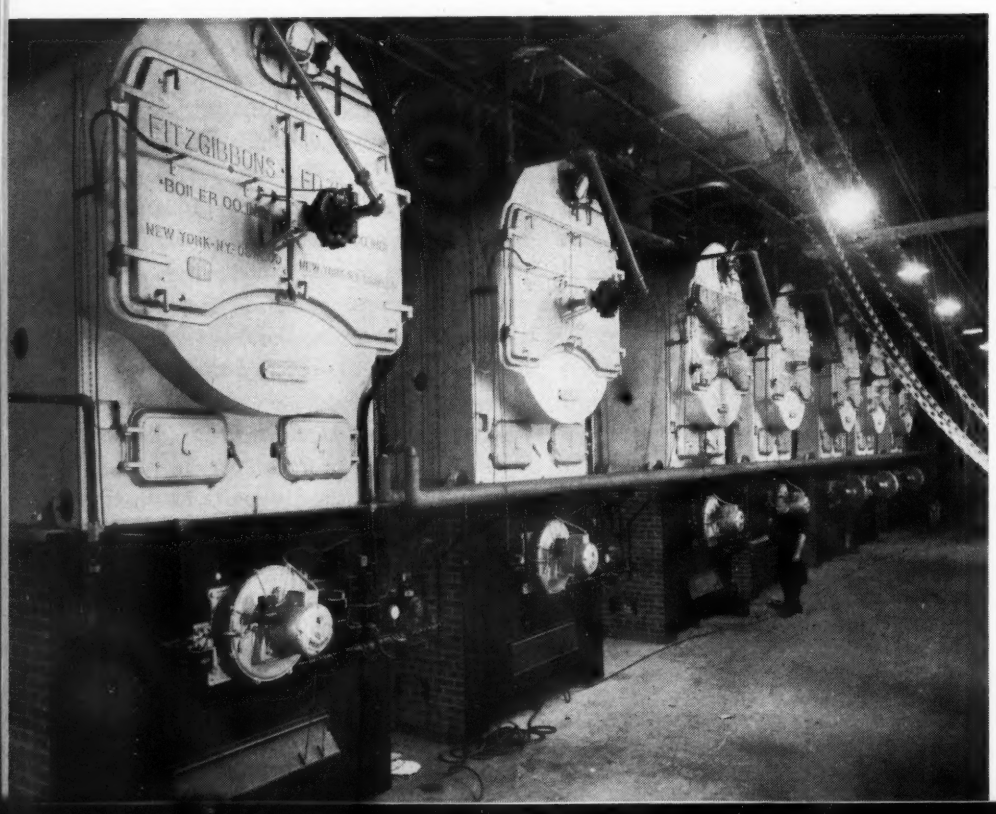


Figure 4. *Another municipal housing installation.*

Non-Domestic Uses

A BRIEF LOOK AT SOME OUT OF THE ORDINARY LIGHT OIL APPLICATIONS

by
Bert Dunphy

WITH THE EMPHASIS that now is being placed on the development of off-season sales, all thinking dealers are wisely organizing their sales forces and installation crews to keep them occupied throughout the year. Flattening out the sales curve and spreading out total installations more evenly throughout all twelve months of the year not only permits a dealer to plan his work more efficiently, but also eliminates the delays or actual lost sales that can result from overworked installation crews in the late Summer and early Fall peak periods normally encountered.

At the same time, those same thinking dealers are regarding with increasing attention the profit and volume possibilities using distillate oilburners in other than domestic heating applications. While the number of these installations never will approach the potential for domestic oilheating systems, uses such as bake ovens, incinerators and the like, require knowledge and techniques that permit a dealer legitimately to include a tidy profit in his selling price, knowing that the figuring, installation work and final adjustment are unusual enough to make them special applications.

Actually, there is nothing particularly mysterious or out of the ordinary about such installations. Basic principles of combustion and installation remain the same, except that the dealer who is being initiated in the use of light oilburners for other than domestic heating, must check first to be sure that he is taking into consideration the oddities or kinks that might characterize such an installation.

The following paragraphs discuss briefly some of the possibilities that nearly every dealer is apt to encounter in his own locality. The diagrams accompanying are layouts for the four systems described, and while these systems are typical of the non-domestic uses to which light oilburners can be put, they by no means are the only ones.

Oilburners in Bake Ovens

Diagram 1 is a layout of a burner installation in a peel oven, a bake oven which takes its name from the peel, or broad, thin, long-handled, shovel-like implement the baker uses in placing or removing bread and cakes from an oven. Note that this oven is direct-fired; the fire is in the space in which the baking is done. That's important and interesting.

Many of these ovens are used in the small, neighborhood bakery and originally were designed to burn coal on a grate. The firebox floor in the diagram is slightly above the level at which the old coal grates once were located. The grates, of course, have been removed. Some installers prefer to place the firebox lower, and locate it about where the ash pit used to be when coal was used.

The gph rates at which these burners are to be fired is a problem that can be perplexing. One method, that has been used successfully and rather frequently for peel ovens which burned coal under natural draft, also can be used for other commercial burner applications which involve converting handfired coal used with natural draft. Determine the grate area in square feet, divide this by two and obtain the oilfiring rate needed in gph. For example, an oven with 3 sq. ft. of grate area should be fired at 1.5 gph.

Clean burning is of prime importance on a direct-fired bake oven, since the products of combustion are released into the baking space, and definitely calls for an efficient burner and a well-designed firebox.

Many of the burners that were used to fire these ovens years ago were installed on wheels that ran in tracks set in the oven floor. After the firebox was brought to red heat, the burner was

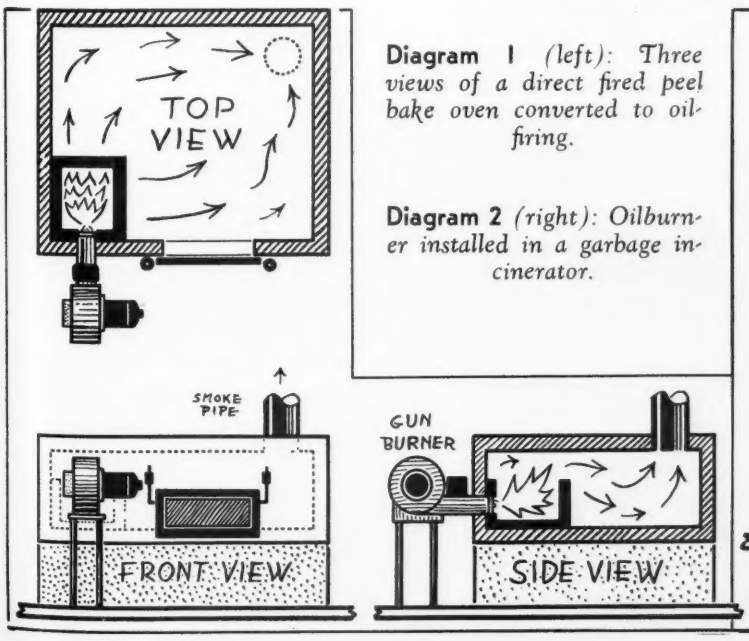
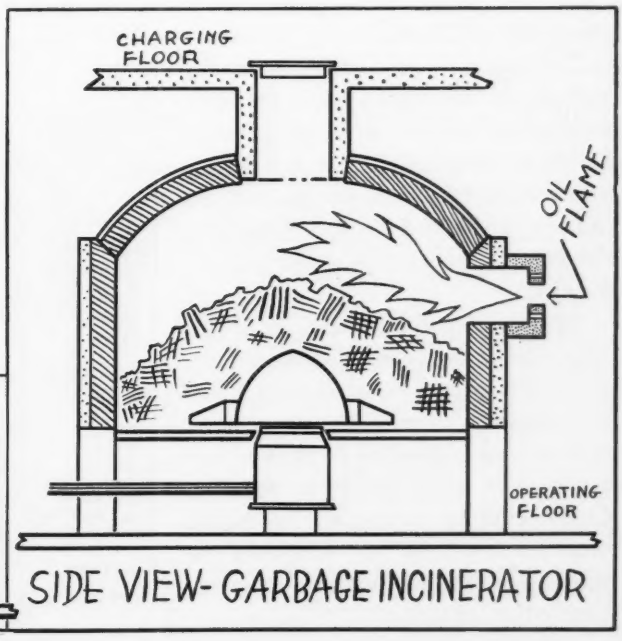


Diagram 1 *(left): Three views of a direct fired peel bake oven converted to oilfiring.*

Diagram 2 *(right): Oilburner installed in a garbage incinerator.*



rolled back away from the fire to avoid coking of nozzle and other burner parts. Later, it was deemed no more important to do this than it was to withdraw a burner in a commercial heating boiler, so the practice now has been discontinued.

Other types of bake ovens include portable indirect ovens, many of which are sold today already equipped with oilburners, and large traveling ovens of the reel and chain types. There are also rotary ovens, which resemble merry-go-rounds, while the reel ovens are like ferris wheels. All are prime prospects for conversion to oilfiring.

Many ovens have burners which are lighted and controlled entirely manually, without safety or other automatic controls. Some have gun burners with no controls, but with spark ignition. In these instances, the ignition transformer, wired to the burner motor, gives a spark all the while the burner runs. On the other hand, some operate under completely automatic controls, with oven temperature controls starting and stopping burners with ordinary controls, or with special safety controls of radiant-heat or electronic type.

Oilfired Garbage Incinerator

Illustrated in Diagram 2 is a typical oilburner installation in a garbage incinerator. Incinerator operators are turning increasingly to oilfiring to eliminate odors and excessive smoke, which presents a real problem these days when residential zones are crowding close to incinerator plants, which once were located in isolated areas.

Conversion to oil also eliminates the problem of obtaining quick, complete combustion of wet loads of garbage. Formerly, when wet refuse was placed in the incinerator the garbage refused to burn at all many times or burned so slowly as to cause garbage to pile up for days.

Equally important, converting incinerators to oil nearly doubles the capacity of a plant. One incinerator which handled a maximum of 20 tons in twenty-four hours, handled 55 tons a day easily after oilburners were installed. Lastly, oilfiring produces a far higher quality ash for fill and minimizes the previous problem of disposing of incompletely burned refuse.

Manually controlled burners normally are used, although some of them are ignited automatically when the motors are started. Generally, though, they have no safety controls. Often a typical incinerator needs a burner that can fire between 10 and 20 maximum gph. Actually, the flame may be used at a firing rate from 5 to 15 gph. Burners of the flexible, horizontal-rotary cup type often are employed.

Since the men who supervise the burning of garbage in an incinerator not always are combustion experts, nor particularly precise and careful, the burners must be rugged because they are subject to possible abuse. Garbage piled in front of, and too close to the oil flame can cause atomized oil to impinge on the garbage and "fire back" to the burner parts, often damaging them beyond repair. Two major causes of trouble are overloading and needless overfiring.

Crematories, using oilburner systems of the type shown in Diagram 3, make such conversions to be known as modern, to obtain high heat rapidly for quiet combustion and to avoid odor and smoke. Burners, which should be capable of having their firing rate altered, should be about 10 gph capacity. In addition to the variable firing rates, provision should be made also to alter the amount of combustion air.

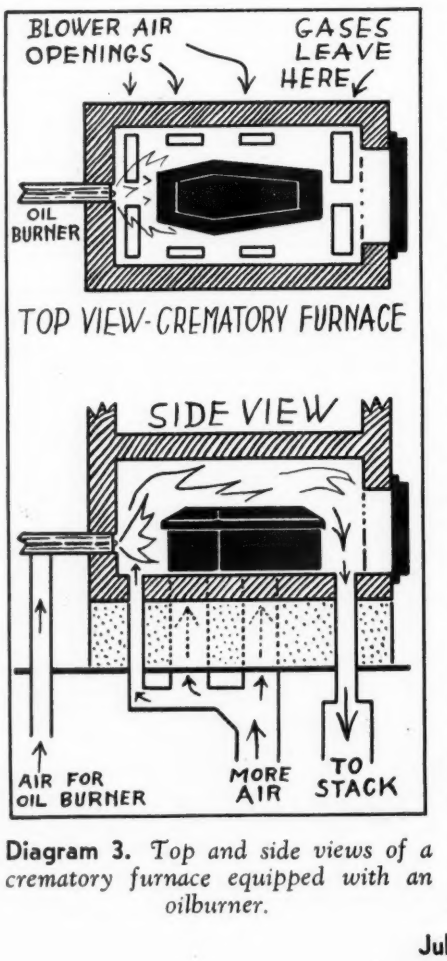


Diagram 3. *Top and side views of a crematory furnace equipped with an oilburner.*

Two kinds of combustion air are needed. One is essential for burning the oil and the second, is equally necessary, to consume the contents of the oven. The illustration shows the process under way with the lid on the coffin, but often the operation is done with this lid removed.

The amount of oil needed is dependent directly on the weight and bone heft of the specimen, and since both vary rather widely, the ability to change oilburning capacity is required.

Commercial Cooking Ranges

The fourth application to be discussed is shown in Diagram 4, the installation of an oilburner in a commercial cooking range. There are a wide variety of oilfired cooking ranges for commercial application available today and several types of burners can be, and are being used to fire such hotel and restaurant ranges. Horizontal rotary cup burners of midget size, vaporizing pot-type burners, horizontal flame vaporizers and low pressure gun burners all can be applied successfully.

Again, the flames should be flexible in size. For small commercial cook stoves rates up to 1 gph may be needed. Largest stoves with more than one large bake oven may need up to 2 gph and the smallest flame needed may be as low as 1/5 gph.

A hotel range designed for coal is shown in Diagram 4, converted to oil through the installation of a midget horizontal rotary cup burner. The burner in this particular installation is located lower than many dealers would install it. Note the excellent flue travel in such a range, the flue gases passing over the top of the oven, down the side, around the bottom and then out.

An important reason why oilfired ranges have become popular is related directly to the high price of kitchen help and the reluctance of such help to care for coal ranges. Also, with oilfiring, kitchens are cooler and the ranges can be turned off when the cooking is finished, rather than banking fires and leaving them burn all night.

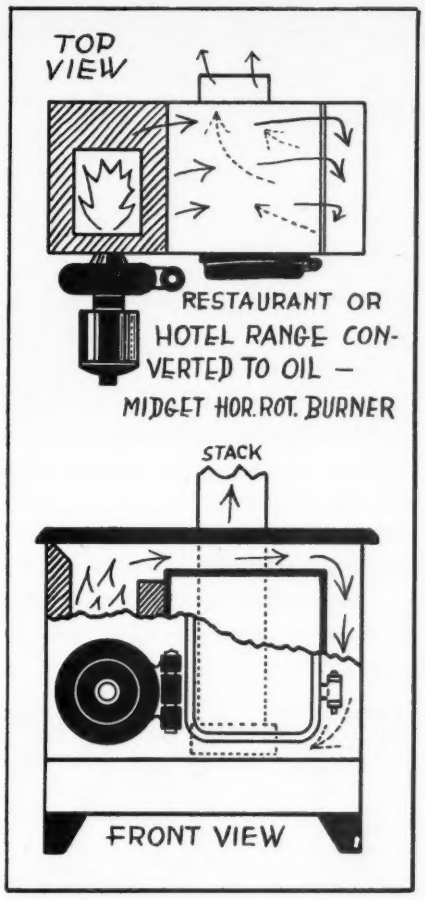


Diagram 4. *Midget horizontal rotary oilburner installed in a commercial range.*

One other consideration, too. Large quantities of hot water are used for dishwashing in places where oilfired ranges are used. Here the dealer gets a chance to sell oilfired water heaters of good capacity.

In this connection it is well to point out the advantages to be gained in a practice that is being used more and more. Waste water from dish washing machines in restaurants is being recirculated to preheat the make-up water that is fed into the water heaters. This not only results in faster pick-up from the water heater, but also permits the installation of smaller capacity water heaters to furnish the same amount of hot water previously furnished by a larger heater.

Additionally, the installation of conversion oilburner equipment can lead easily to the sale of accessory equipment. In submitting competitive bids, a dealer is almost forced to submit a figure on a stripped job to keep his price in line with others. However, a dealer often can submit along with the bid for the standard or stripped job alternates for other equipment that will make the installation much more efficient.

He can explain to the prospect that the original bid covers all the equipment that is needed to do the job in an ordinary and satisfactory manner. At the same time he can impress on the prospect the fact that addition of such items as draft regulators, outside weather controls and zoned heating, where applicable, light weight fireboxes or unit heaters if they can be used, are refinements that will remove the installation from the ordinary class and improve the operation of the system.

Of considerable importance is the consideration that many times these special items represent a greater percentage of profit than the rest of the installation.

Then there are other applications of light oilburners that are reaping good returns for those dealers farsighted enough to push them. Some have been particularly successful with ceiling-suspended furnace units, designed for use in garages, warehouses or other locations where floor space is at a premium, but where heat is needed. In larger sizes, the direct-fired warm air units have been found exceptionally efficient when installed in large open spaces in factories where the heat can be distributed either through directional outlets on the heater, or through ducts to more distant areas. A third lucrative source of income is the portable heaters made by Silent Glow Oil Burner Corp., which have a wide range of applications for temporary heat, plaster drying, tobacco curing, potato car heating and similar uses in agriculture.

Engaged as he is in a highly competitive business, the average oilburner dealer today fights harder than ever for his share of the business and for a fair profit on the business he secures. To these dealers the suggestion is offered to consider carefully the possibilities inherent in the few special applications herein discussed.

In all probability, they never will represent a principal source of business or income for the average dealer, but they have been a source of real profit for some dealers and can benefit any dealer who approaches the problems they present with the same caution and competence that he displays installing the usual domestic heating system.

Residual Heating Oilburners In Operation January 1, 1950

THERE ARE REPEATED calls for a state breakdown of residual oilburners in use. Not often is such a table undertaken because the whole field of heavy oil burning is so hard to classify. Also there are numerous overlapping uses, as for example a factory building that is heated by exhaust steam from an oil boiler bought primarily for power.

The listings in the table are intended to represent burners used for heating only; they include apartments, office buildings, warehouses and all other applications where there is no power generation nor processing involved. The sectional totals are more accurate than the individual states.

	Operating 1/1/50
Massachusetts	27,946
Connecticut	10,514
Rhode Island	4,222
New Hampshire	1,670
Maine	1,186
Vermont	490
New England	46,028
New York	24,475
New Jersey	9,772
Pennsylvania	8,884
Maryland	2,100
Dist. of Columbia	1,720
Delaware	203
Middle Atlantic States	47,158
Illinois	16,683
Michigan	6,198
Missouri	5,559
Indiana	1,989
Wisconsin	1,848
Minnesota	1,398
Kansas	819
Ohio	651
Iowa	527
Nebraska	517
South Dakota	35
North Dakota	..
Middle Western States	36,224
California	18,784
Washington	8,029
Oregon	7,206
Nevada	291
Montana	205
Arizona	71
Wyoming	19
Idaho	9
Utah	9
Colorado	..
New Mexico	..
Western States	34,623
Florida	2,406
Virginia	1,217
Kentucky	872
Tennessee	623
Texas	535
Arkansas	366
Louisiana	338
Georgia	312
North Carolina	132
Alabama	88
South Carolina	44
Oklahoma	8
Mississippi	..
West Virginia	..
Southern States	6,941
TOTAL UNITED STATES	170,974

Flexible Heat and Power

APPLICATIONS AND ECONOMICS OF THE PORTABLE STEAM GENERATOR UNIT

by
George D. Frank*

PACKAGED STEAM GENERATING plants are rapidly gaining acceptance in all types of industry, for the purpose of furnishing processed steam as in bakeries, laundries, dairies, bottling plants, plastic plants, molding operations, food processnig and many others where pressures up to 200# are required. In the heating field, acceptance of the packaged generating plant is gaining momentum for applications of low pressure steam heating and forced hot water heating.

Those individuals responsible for the purchasing of this equipment have in the past made their selections because they appreciated what they were getting when they decided on a completely factory-built packaged steam generating or heating plant. If you take time to analyze the all-inclusive factors required for a factory designed, manufactured, assembled and tested steam generator plant, you will be amazed as to the details necessary to produce the efficient dependable steam generating plant the consumer now insists upon.

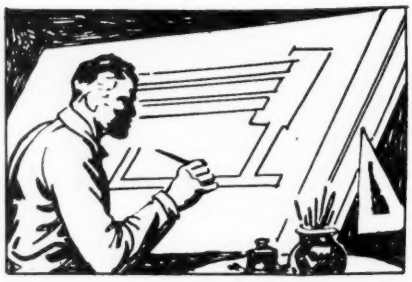
1. A pressure vessel must be designed according to all local, state and national codes, of which I can assure you there are many. In designing a steam generator, the proper ratio of light surface, or

Planning

that surface exposed to or seen by the burner flame, to the dark surface, or that surface beyond sight of the flame, is required so that the proper temperature of exit gases or stack temperature will result. In designing the pressure vessel, thought must be given to the type of firing system or combination firing system you plan to use so the fuel burning system becomes an integral part of the steam generator.

2. The oilburning system or firing system must be so designed, along with the automatic control system, for varied firing rates which will take the proper type of fuel desired, which might be the lightest oil or the heaviest pre-heated oil, with necessary control. All controls for firing systems are subject to the inspection of various insurance companies and Underwriters.

3. The firebox, or refractory brick work, must be designed as an integral part of the steam generator plant to provide exceptionally long life and to



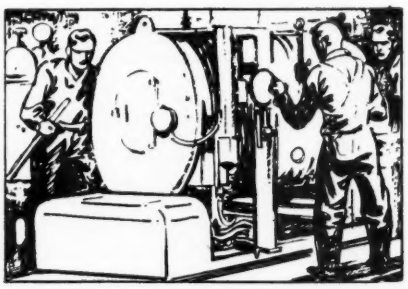
Designing

assure maximum efficiency with applications at various firing rates.

4. The feed water system, piping, etc., in most cases are properly installed by the manufacturer with make-up valves, injectors, controls, and safety low water cut-off valves. This complete system must be properly sized for the steam capacity of the boiler for safe, dependable feed water operation.

5. The packaged steam generator is an integral plant in which all of these previously designed units are integrated into one efficient system by experienced design engineers for all various capacities and functions to produce steam at low or high pressures at the lowest cost of operation, maintenance and capital investment. All parts must be drawn up for production, bills of material prepared and purchasing departments established to obtain highest quality, lowest cost raw materials.

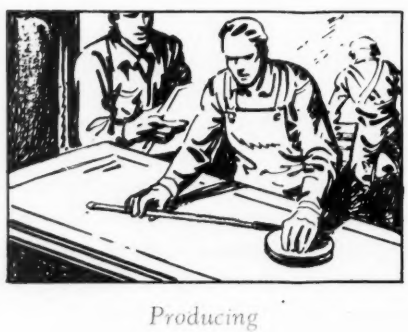
6. Proving the new designed packaged boiler plant is accomplished when all component parts have been assembled on the boiler and it goes to a testing sta-



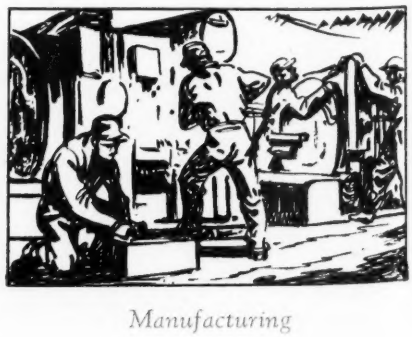
Proving

tion where all components are tested under operating conditions to give you maximum firing for a definite period of time, measuring of fuel and electrical requirements, testing feed water system at full operating head pressure and checking electrical controls and sequence of operation. In most cases you have the Underwriters' man present to see that proper procedures have been carried out before the labels are attached.

7. Production manufacture—In an efficiently operated shop, it is necessary to keep cost of manufacture as low as

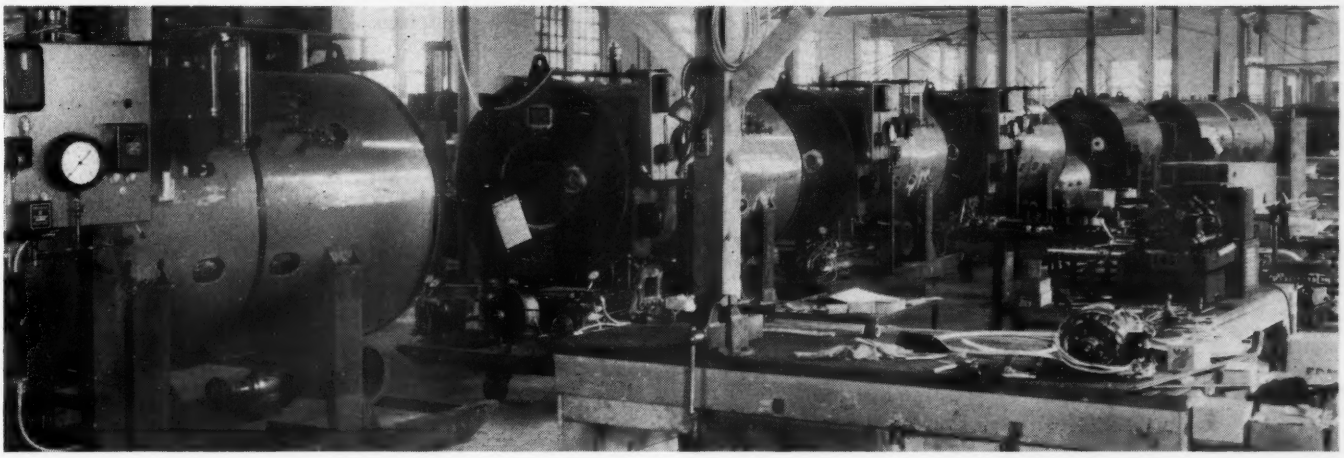


Producing



Manufacturing

*Manager, Industrial Division, York-Shipley, Inc., York, Pa.



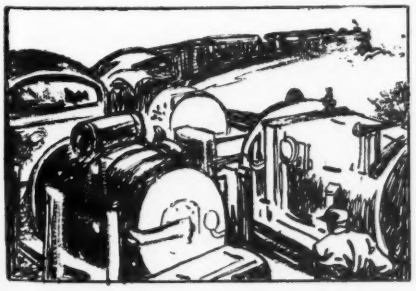
possible. A typical production line for packaged boilers (illustrated) shows the efficient line production so desirable in their fabrication.

8. Certificates for local and state authorities, along with the certification or verification of the efficiency of the unit

Instructing

are obtained; also instruction manuals and specification sheets must be prepared to help the distributor properly engineer the requirements.

9. Shipping—The packaged generating unit is shipped covered with an efficient insulated material, in turn wrapped with a metal jacket to keep it clean and guarantee low stand-by and minimum



Shipping

of radiation losses. Mounted on a self-supporting base, these untis are easily handled from manufacturing point to truck or railroad car, to warehouse, to customer location.

10. Installation of a packaged unit is generally made by an engineering distributing organization of specialists, trained to analyze steam heating problems and determine the best type of equipment to be installed; whether it requires installation on the fifth floor, similar to the illustrated photographs, or on a ground floor factory, the packaged unit is far more flexible and consequently more desirable than ever before.

The greatest advantage in all of this procedure is the fact that design, engineering, manufacturing and assembly

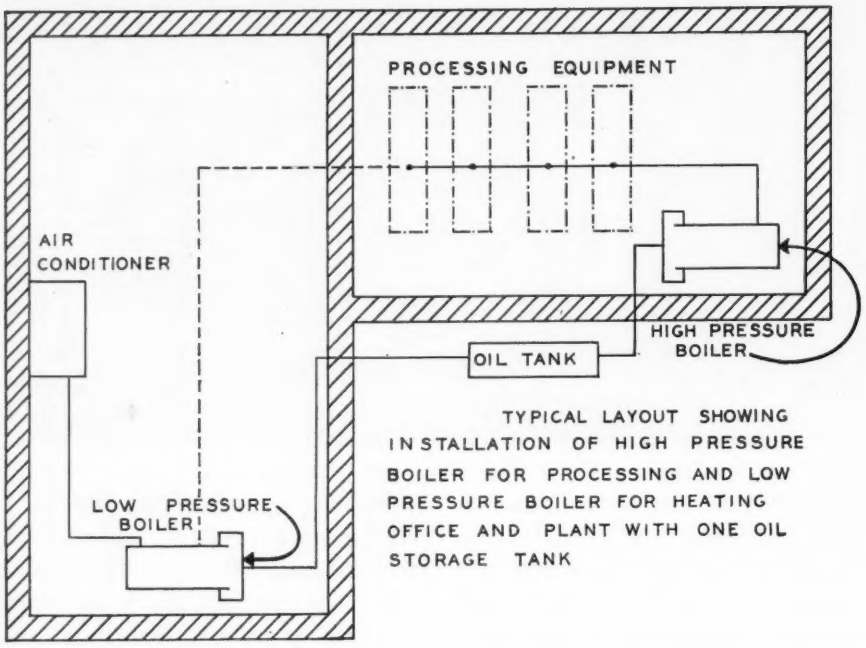
Installing

are done in most cases by one manufacturer, and when a steam generator is selected you can benefit from this one manufacturer's knowledge and experience. If the cost of all these operations were piled onto one boiler, that boiler would be practically gold-plated. Modern production, however, enables the manufacturer of packaged generators to charge off the bulk of these costs to thousands of units. The consumer profits by the production savings.

When considering the packaged steam generating unit, the prospective user is faced principally with the problem of determining type of equipment, type of fuel and cost of operation. Consider the prospective user, contemplating a building to house his manufacturing plant and office force. Suppose he needs heating for his factory and offices and needs some process steam for a small section of the factory. With the packaged steam generators, he is free to select two units. One for his process load, possibly a 100 h.p. unit, and locate this boiler near the source of the demand. He can operate this unit the year round. The heating plant can be located in the most convenient spot when designing the heating system. This plan is feasible because of low installation cost and small stock size required for steam generating plants.

In most cases the mechanical draft equipment is built right into the unit as a part of the oilburning system, requiring only a small low stack. No special foundations are required as the unit can be placed on the average concrete floor. Head rooms are low in most cases and this equipment will not require special heights or pitting or red brick or steel base to raise the boilers for additional volume. A central tank and transfer system can be set up to feed both generators, resulting in considerable savings to the user, by eliminating long transportation lines. Also, it would not be necessary to operate the heating boiler when temperatures are such that heating office and factory are not required.

This program actually can be extended to additional boilers in the plant, whereby several process departments having independent requirements at various times are served by a second or third boiler, economically placed close to the source of demand and for use only when that particular process is in op-



TYPICAL LAYOUT SHOWING INSTALLATION OF HIGH PRESSURE BOILER FOR PROCESSING AND LOW PRESSURE BOILER FOR HEATING OFFICE AND PLANT WITH ONE OIL STORAGE TANK

eration. Another advantage in this type of operation is maintenance. Under various state codes, if these units fall within the required square feet of heating surface, only a minimum amount of maintenance is required.

An important decision in the analysis of this prospective customer's problem is to determine what type of fuel to burn. Assuming that all grades are available, you must definitely approach this program on a sound economical basis. The following table shows the comparison of initial cost and fuel cost, based on consumption of #1, 2 or 3 oil (local N. Y. retail prices) vs. #5 oil, vs. #6 oil (current N. Y. boiler prices). The proposed plant in this table is a 100 h.p. unit, operating 6 days a week, 250 days, at reasonable maximum capacity. Total fuel consumption over the given period would be several thousands of gallons. Capital investment and depreciation must also be taken into consideration.

You will note the annual cost, including depreciation, is lowest with #5 or #6 oil, whereas initial cost is lowest with #1, 2 or 3 oil. Each problem is different, however, and each must be planned for all factors considered for the most efficient method of operation.

Typical Examples of Simple Well-Engineered Jobs:

1. A cleaning plant in Boston put in a packaged steam generating plant in a small adjoining building. They saved valuable space in the pressing room which enabled them to expand their business and at the same time, by changing from #3 oil to #5 oil, they cut fuel costs in half.

2. A textile mill in New England replaced hand fired boiler equipment with modern packaged generators for high presure steam processing and saved engine room space, as well as cost of fuel and labor, approximating $20,000 annually.

3. A midwest railroad installed a number of packaged units in their round houses and on each one of them saved approximately $1,000 per month in fuel and maintenance.

4. A midwest zoo installed four packaged steam generators to provide heat for several buildings. By installing the units in each building, they eliminated cost of long steam lines ordinarily required for central heating systems.

The modern packaged steam generator of today compares with your kitchen refrigerator. It is designed and manufactured by factory experts; it is prefactory tested and proven and is manufactured on a production line basis which lowers the initial cost of the equipment. Automatic operation saves on the cost of labor and cuts down maintenance. No equipment is more compact, or requires less costly installation when properly engineered. It is the answer to modernization problems in every type of industry requiring steam for processing or for heating purposes.

COST COMPARISON FOR 100 H.P. STEAM GENERATOR USING NO. 1, 2 OR 3 OIL VS. NO. 5 OIL VS. NO. 6 OIL—UNIT OPERATING AT MAXIMUM CAPACITY 6 HOURS PER DAY, 250 DAYS PER YEAR.

Fuel Required	*#1, 2 or 3 oil at 11.8¢ gal.*	*#5 oil at 6¢ gal. plus freight*	*#6 oil at 5¢ gal. plus freight*
Consumption for year	44,400 gal.	42,300 gal.	41,200 gal.
Cost Generator Plant	$4,500.00	$4,900.00	$5,550.00
Storage Tank	500.00	1,200.00	1,200.00
Fueloil Pump Heating System	—	—	1,000.00
Installation Cost	500.00	500.00	500.00
Total Capital Expense	$5,500.00	$6,600.00	$8,250.00
Operating Cost			
Depreciation 10 yrs.	550.00	660.00	820.00
Cost of Oil	5,239.00	2,538.00	2,060.00
Maintenance	100.00	200.00	300.00
Annual Cost	$5,889.00	$3,398.00	$3,180.00

New Record Established by May Construction Activity

A REPORT released by the U. S. Dept. of Labor's Bureau of Labor Statistics and the Construction Div., U. S. Dept. of Commerce, indicates that construction activity set a new record in May, exceeding even the seasonal peaks of the Fall of 1948 and 1949. New construction, valued at more than 1.9 billion dollars, was put in place in May, 23% more than the same month last year, with private construction accounting for 1.4 billion dollars of the total. The private construction figure represents an increase of 12% over April and 27% more than May last year.

Expansion in private homebuilding activity accounted for nearly half of the advance from the preceding month and for more than three-fourths of the increase over May 1949. Public construction expenditures in May were estimated at $531 million, 19% over April and 13% more than May 1949.

During the first five months of 1950, the total value of all types of new construction was nearly 8.1 billion dollars, 21% more than the same period last year. Private construction, with a value of 6 billion dollars was 22% ahead of last year, largely as a result of the 51% increase in private homebuilding.

How Todd Converted the "Pulaski" from Coal to Oil

AT THE BOTTOM of the page are shown a before and after view of the boiler room of the Gdynia-America Line passenger-cargo ship "Pulaski," illustrating the contrast between the old coal fired installation and the application of Todd oilburners.

A large percentage of foreign built steamships, and a small portion of American vessels still fire their boilers with coal.

The outlay for a conversion to oil is understandably high, but whatever the cost it is more than made up in savings of personnel. An oilburning system usually is a one or two man operation, while as many as a half dozen coal passers are needed for each shift with coal fired boilers.

Additionally, the oilburners provide smoother operation, more consistent speed, lower fuel costs in proportion to the speed attained, lower maintenance costs and less chance of breakdown. Also, there is the human element to be considered. Crew members enjoy considerably cleaner working conditions and passengers are bothered less with heavy smoke on deck.

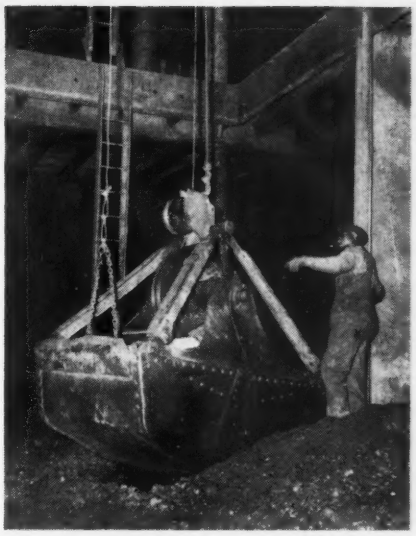
This conversion was performed by Todd Shipyards Corporation, prominent in the marine oilburning field and which has performed a large number of such conversions for a number of ship operators in this country and abroad.

The before view of the installation shows the boiler room of the "Pulaski" as it looked when the vessel entered the Todd Hoboken shipyard for conversion. Note the piles of coal before each of the boiler sections, and the general untidiness of the area, filled with coal dust.

After the conversion was completed the finished job boasts a spotlessly clean deck. The boiler room staff relaxes for the automatic feeding systems are simple to operate.

Removing *the gratings from inside the furnaces prior to conversion.*

The small picture in the center column shows the first step in altering the furnaces, of which there are three to each of the five Howden scotch-type boilers. A worker, after releasing the gratings from the inside of the furnace, hands them through the door.



Scoop *from a floating derrick emptying the coal storage bunkers.*

Adjacent to the boiler room are huge coal bunkers, shown in the picture in the upper right of the page. Much of this space was converted to valuable cargo space after the conversion. A floating derrick lying alongside the vessel has just dropped its two ton scoop into the coal to remove the remaining supply prior to conversion.

The photographs demonstrate the difference in outward appearance between the two systems, but cannot show the improved and simplified operation attained with a conversion of this type.

Before and after view, *contrasting appearance of the boiler room of the "Pulaski" as it looked when its boilers were fired with coal and after Todd oilburners had been installed.*

Electronic Controls for Big Jobs

MAXIMUM RELIABILITY IS GAINED ONLY THROUGH THE USE OF ELECTRONICS

by
J. W. Schulz

THE MAGIC OF ELECTRONICS has been finding its way into the field of oilburners, especially big oilburners. Using electronics, control designers and engineers can do things which otherwise are impossible.

Consider a fully automatic horizontal rotary cup burner firing between 20 and 200 gph. It is a fact that electronic safety controls can do things for such a burner that can't be done by other controls. Electronic controls must be used for this burner if the ultimate in safe operation is to be provided.

Many farsighted burner dealers are welcoming electronic controls for big burners and the new safety features they provide. These dealers recognize the great value in the new features. They know the dealer who offers these features is years ahead of the dealer who does not. On the other hand, there are dealers handling commercial-industrial burners who have been trying to hold back against the use of electronic controls. Often these dealers do poorly in an argument with control experts, for it turns out the dealer talking against electronic controls has had little or no experience with them.

A burner dealer arguing against electronic controls for big installations is bound to lose out. He can't get around the fact that there's a solid front of top-rank, powerful safety authorities who have reached the conclusion that big oilburners are safer when fitted with electronic safety controls than when fitted with other types of controls.

Concentrating on an automatic horizontal rotary cup burner firing between 20 and 200 gph, it's easy to understand precisely how older types of controls fall short compared to electronic controls. A good safety control system not of the electronic type may provide these safety features for such a burner:

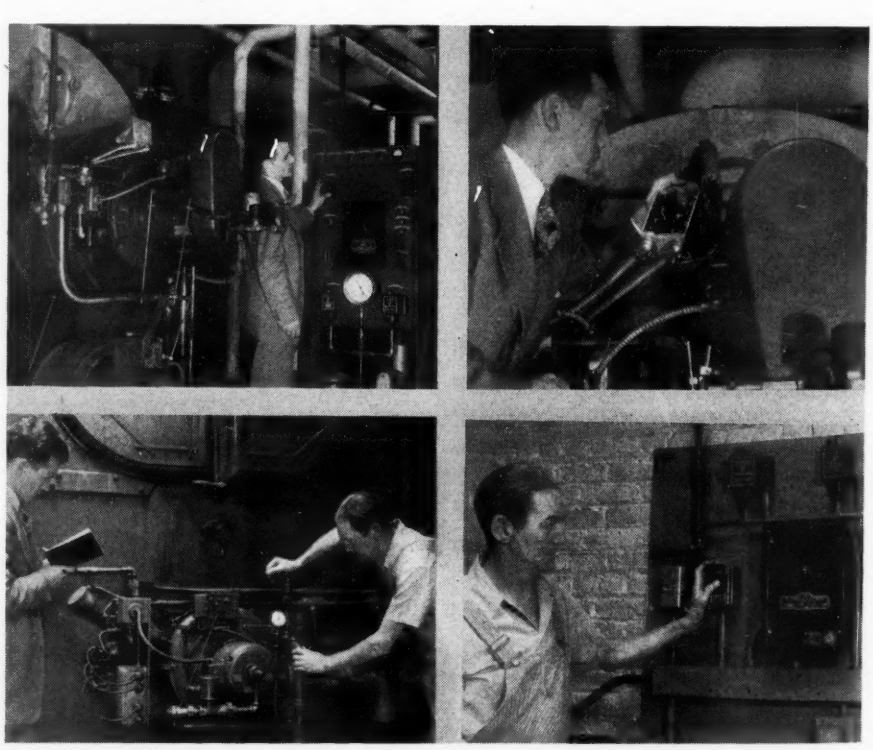
1. Before the burner can start, it must be idle for some time, perhaps at least 10 seconds or one minute depending on the characteristics of the particular installation and its controls.

2. Assuming that a smokepipe or similar control is used to indicate whether or not the oil flame is burning, this control must chill and indicate the flame is not burning. That is, before the burner can start this control must set its switch or switches in the positions which are correct for an idle burner. As service men say, the burner can't start if the stack control sticks in its hot or burner-on position.

3. Where low-fire starting is used, the safety control prevents the burner from starting except when the burner oil and air controls are set to give a low fire.

4. For starting, the controls turn on a gas-electric ignition system. This ignition system is turned off by the safety control system a certain length of time after the stack control has been affected by heat from the oil flame.

5. The oil valve on the burner is turned on by the controls perhaps 30 seconds after the burner motor has been started. This is the usual feature of delayed oil valve opening.



Wheelco Flame-Otrol Combustion Safeguard System

Upper left: *This 150 hp Johnston Package Boiler, operating unattended to heat a city hall and municipal building, uses No. 6 oil. The unusually handsome, complete control panel which is part of the boiler unit has many niceties, including five signal lights at the top that report on the operation of such things as the ignition system, oilburner oil valve, automatic water feeding arrangement, etc. In the feed line to the cup of the oilburner is a Niagera oil meter, permitting easy checking on daily oil consumption.*

Upper right: Here's the Wheelco electric eye that checks the oil flame electronically every second the burner is operating normally. Since the war, Wheelco has been using a blue-sensitive cell for flame checking. When earlier it used a cell more sensitive to red, Wheelco says, often it had to use a blue filter to prevent the cell from picking up signals from red-hot firebrick. The blue-sensitive cell eliminates need for the blue filter, says the manufacturer, and is more in range for proper operation of an oil flame. This job has a rod for checking beforehand, before the oil valve opens, on the proper burning of the gas pilot of this horizontal rotary cup burner.

Lower left: A conversion job. This old-timer 150 hp Godfrey Keeler high pressure boiler has the last word in a York Heat horizontal rotary cup burner for No. 5 oil, and equipped of course with electronic controls.

Lower right: The Flame-Otrol control panel of the York Heat burner job. Wheelco uses an electric clock for programming, and has a special feature to keep the burner running for testing, priming, starting after running out of oil, etc.

6. The controls protect against the burner's starting when the line voltage is too low for proper operation of the ignition system and burner motor.

7. IMPORTANT — The controls turn on the burner motor and ignition system, then turn on the oil valve in about 30 seconds, and then permit the burner to operate for a short time in an effort to start properly. If the burner fails to light the oil and therefore the stack control is not affected by heat from the flame in a predetermined length of time, say 90 seconds, the burner is turned off by its safety controls in such a way that manual restarting is needed.

8. IMPORTANT—With the burner in operation, the safety control guards against flame failure. If the oil flame stops burning and the stack control therefore chills, the control system will stop the burner. Some controls provide for one automatic restart after a burner has been stopped because of flame failure in normal operation, while others do not.

Make the most of these safety features by using the best in safety controls not of the electronic type, say one of the excellent Minneapolis-Honeywell control systems that has been a favorite for years with lovers of big, automatic jobs, and what can you possibly gain by injecting the complications of electronics?

To answer that question, concentrate on the two last features, marked important.

According to feature 7, these controls permit a burner to operate without flame for, say, 90 seconds when the burner is trying to start properly but

Minneapolis-Honeywell Electronic Safety Controls

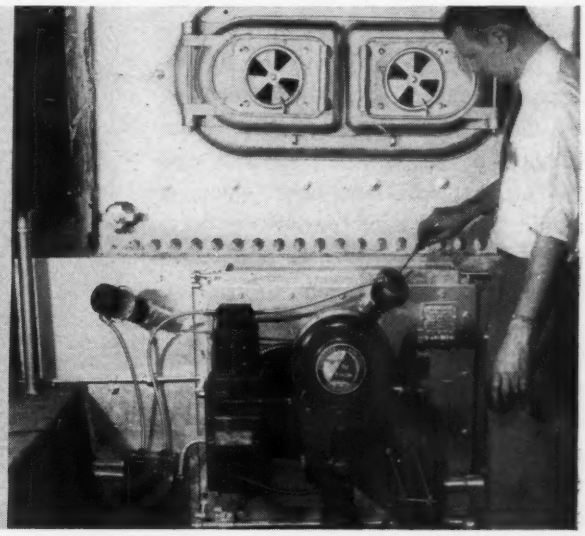
You find no attendant *when you walk into this boiler room in which two Kewanee boilers, each of estimated rating of 185 hp, use No. 6 oil to provide heat and hot water for 86 apartments, 12 doctors' suites, and an adjacent taxpayer building that includes eight stores and eight offices. Each boiler has a built-in tankless water heater. There's no attendant although No. 6 oil is used. Day after day, summer and winter, the burners start and stop automatically without anyone entering the boiler room to give them attention. The Minneapolis-Honeywell electronic safety controls are more cautious, dependable, and speedy in checking on safe burner operation than any attendant could be. First, before a burner starts, these controls check to make certain the pilot supervising device and flame supervising device are both in their cold or idle-burner positions. Second, these controls check the gas pilot electronically after the burner motor starts; only if the pilot is burning properly will the oil valve of the Preferred Utilities burner open. Third, the controls stop the burner if the oil flame fluctuates or goes out. Any acting up of any flame, from the smallest size to the largest causes a burner shutdown in four seconds. There's no relying here on a slow-acting stack control! There are none of the unguarded intervals of burner operation that used to be the result of using a slow-acting stack control or similar control!*

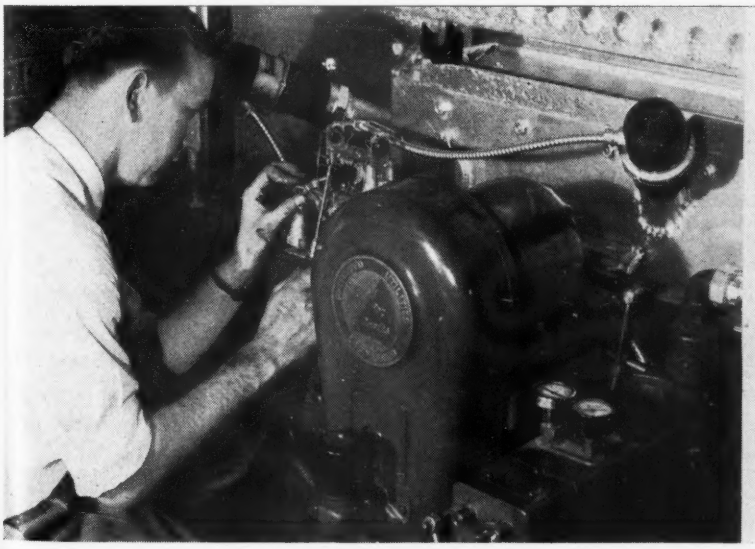
Upper left: The photocell or electric eye, which must continuously report the flame is burning proper if the burner is to continue running, is easily slipped from its mounting.

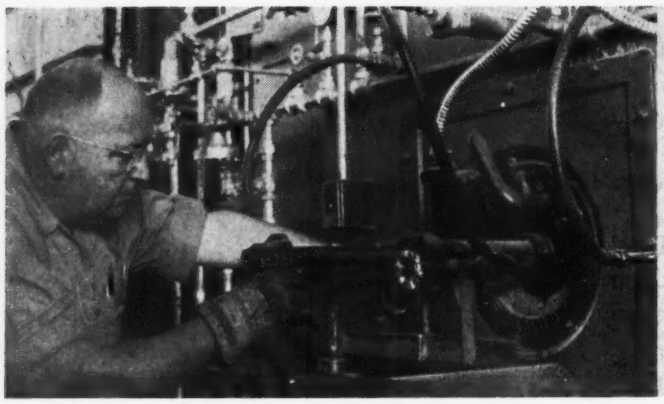
Upper right: This service man is working on the exceedingly simple electronic rod that touches the gas pilot flame. A good, healthy gas pilot flame must reach out and touch this rod; otherwise the oil valve of the Preferred Utilities burner will not open. The housing of the electric eye or photocell that checks the oil flame can be seen on the left hand side of the boiler front plate.

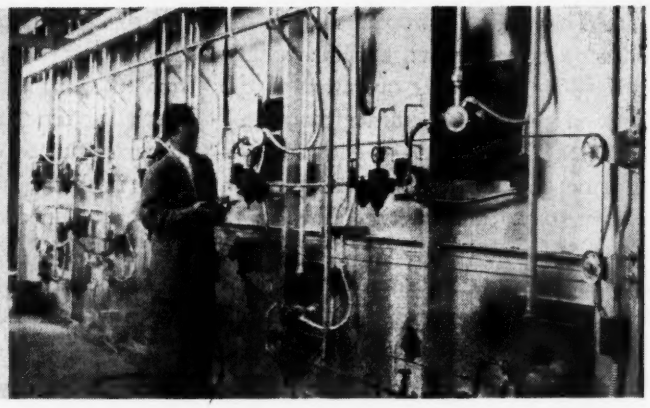
Lower left: The service man inspects the Minneapolis-Honeywell control motor that provides the burner with its low-fire start feature.

Lower right: Connected to a well-known, standard Model R161B Protectorelay, this simple "Flame Detector Relay" permits the flame-checking photocell and pilot-checking electronic rod to give proper signals to the Protectorelay. Service men understand the control setup easily because the Protectorelay itself behaves just as though it were getting signals from a Pyrostat.









Left: *This manually-lighted Peabody burner has a return type nozzle. Using pressure atomization principles, it can give a wide range of fire sizes. Hays controls set the firing rates in this power plant. Wheelco equipment safeguards. For lighting up, the fireman presses on a knee control button to keep the oil for the burner turned on until the Wheelco electric eye picks up a signal to the effect that the flame is burning properly. Complete safety against flame failure is the big function of the electronic controls in such a plant as this.*
Right: *There are ten industrial-type Hauck oilburners on this side of this traveling oven, used for drying asbestos siding shingles, and ten burners on the other side. Twenty oilburners all told, each controlled by a Wheelco electronic control system. If the flame of any burner fails, the burner is turned off automatically in a matter of split seconds. A Wheelco recording and controlling system, called the Capacilog, uses electronics also and permits the use of any or all the burners to keep the oven at the desired temperature. Because of the electronics used in it, this modern automatic oven does things otherwise impossible.*

the flame does not light. Standing in front of a boiler and watching a burner trying to start properly, a man who knows burners does not let this burner run and run for the full 90 seconds when, after the oil valve clicks open, the oil being sprayed into the firebox does not light. He knows that more or less violent results come of lighting the oil late. If the oil being sprayed into the firebox does not light when it should, it might light later. An ignition system that's been dead or ineffective might come to life and light the oil late, or the oil might be lighted finally by heat from a firebox still hot from a previous run of the burner. Delayed ignition gives what service men call a puff. The most powerful puff is the one that almost was missed. It's the one that comes just before the safety controls act to prevent it. The atomized oil in the firebox and boiler becomes ignited just before the safety controls stop the burner, when the worst puff occurs, or oil vapor in the firebox is set off by firebrick heat just after the burner is stopped by its safety controls, the heat being insufficient to light the oil earlier, but sufficient to light the oil vapor that settles after the burner motor stops.

An oilburner ignition system can work late, resulting in a puff before the ailing burner is stopped in 90 seconds by its safety control, because of such defects as a partly plugged gas line, soot shortcircuiting the spark circuit in an uncertain manner, worn-through insulation on a high tension cable, a weak ignition transformer, a gas valve opening feebly, or dirt and carbon affecting the spark or the gas tip. If the ignition system plays dead for 30 or 60 seconds when the burner is starting, and then comes to life, there's a puff on a job that has controls not of the electronic type that will be described. There's a puff also on such a job when the ignition system goes dead entirely, and firebox heat ignites the oil 30 or 60 seconds late.

According to feature 8 of safety controls not of the electronic type, flame failure during normal operation of the burner causes a drop in the stack temperature with the result that a stack control or similar control turns off the burner. There are two difficulties in this. First, a stack control may act slowly, permitting the burner motor to run 15 to 60 seconds after a drop in stack temperature caused by a pulsating or dying flame. Second, burners having flames of the low-fire start type, or high-low or modulating type, must continue to operate at the lowest stack temperatures that come from the small flames used normally. It is difficult, then, for a stack control or similar control to distinguish between low stack temperature caused by a small flame burning properly, and low stack temperature caused by unsafe, erratic burning of a larger flame. If the smallest flame used gives a stack temperature of 350° and the largest flame gives 700°, a stack control may be set to indicate the flame is out when the stack temperature drops below 350°. The burner motor may run for many minutes under these conditions after the largest flame fails; whereas actually the motor should be stopped quickly on failure of the largest flame.

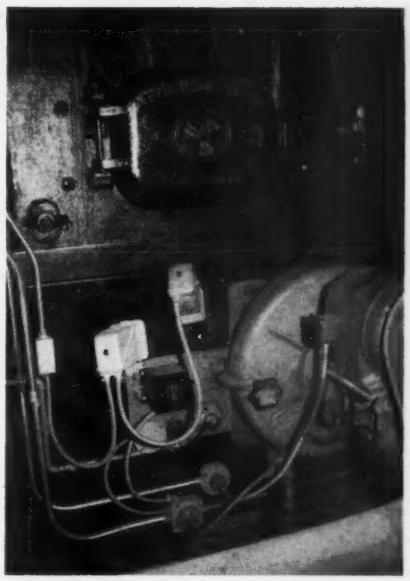
The reason a burner should be shut off quickly, in a matter of seconds, on failure of its flame during normal operation, is that the oil may have stopped spraying into the firebox . . . and in a second or two it may start spraying again. Suction line leaks, pump shortcomings, a plugged strainer, faulty preheating of heavy oils, and a number of other troubles can cause the flame to fail and then try to start again. Even ordinary running out of oil can cause the flame to fail and then to relight. With a firebox cherry-red hot, a bad puff does not come of stopping and starting the spray of oil into the firebox with the ignition turned off, for an extremely hot firebox lights quickly any oil sprayed into it. But with the firebox cooler, just hot enough to light oil that has sprayed into it for a minute or two, stopping and starting the oil spray can do real damage. A burner expert stops a burner almost instantly when he sees that the flow of oil into the firebox has stopped while the ignition is off, and when he knows that for some reason the oil spray may start again. To be most nearly perfect, a control system also must stop the burner almost instantly when the flame fails.

Here are the two reasons why elec-

tronic safety controls for automatic horizontal rotary cup burners are in a class by themselves, years ahead of other controls in performance:

First, in the most advanced forms of electronic safety control systems for such burners, the gas pilot of the burner is checked electronically for proper operation before the oil valve on the burner is opened. Thanks to the magic in electronics, a rod can be used to tell if the gas pilot is operating properly. This rod is touched or enveloped by part of the gas pilot, when the gas pilot is burning properly. The burner motor starts in the usual manner, and the ignition system is turned on simultaneously. The oil valve is given its usual delay. But the oil valve cannot open until the safety system receives an electronic signal, from the rod in contact with the gas pilot, indicating the gas pilot is burning properly. The result is starting security of a type unheard of before the development of electronic controls.

Second, a scanner or electric eye, affected by light rays from the oil flame, can act instantly to turn off a burner when the flame fails. Actually, for practical reasons related to wavering flames, smoke possibilities, and similar factors the response of this flame-checking device may be slowed somewhat by design, with the result that the burner is stopped in two to four seconds on failure of the flame. The speed of the electronic control is of tremendous value with respect to flame failure.



Fireye *control used with an Iron Fireman horizontal rotary oilburner.*

An additional advantage is that the electronic control turns off a burner just as promptly for failure of the largest flame used on the installation, as for failure of the smallest flame used.

Why use electronic controls on installations having automatic horizontal rotary cup burners? The answer is simple. These controls must be used if you want the two features that come only through the help of electronics: First, a practical and dependable check-up on the gas pilot before the oil spray is turned; and second, extremely rapid, almost instantaneous shut-down of the burner in case of flame failure involving the smallest or the biggest fire the burner gives.

Fireye Combustion Control

Combustion Control Corp., *the manufacturer of the well-known Fireye equipment, has been working for many, many years on electronic controls for oilburners of commercial-industrial types and boasts of particular achievements in flame rods for monitoring the pilots of gas ignition systems.*

Upper left: This power plant, in a factory devoted entirely to making cathode ray tubes for television, has two Fitzgibbons boilers rated at 250 hp each, and one boiler rated at 143 hp. Using his chemical-type flue gas analyzer, the chief engineer declares he obtains CO_2 readings as high as 14.7%, and light-load readings of 14% in the course of everyday operation. His highest stack temperature for peak loads, says he, is 335°. His many niceties of operation and maintenance include turbining the tubes by hand, and running the boiler water at zero hardness. A Robot-Eye, made by the General Power Plant Corp., uses readings from an electronic smoke indicator to set the amount of air given the flames of the oil-burners; thus a mild smoke, invisible to the eye but easily checked electronically, is maintained automatically, and high CO_2 readings result automatically from this. The two Fireye electronic control units on each Petro oilburner serve for pilot-monitoring and oil-flame-monitoring.

Upper right: Close-up of the Fireye programming control used for each Petro burner.

Lower left: The flame scanner unit on the boiler front plate contains an electronic tube and a photocell.

Lower right: The chief engineer inspects his clean-cut and simple rod, used to check for proper gas pilot operation before the oil to the burner can be started.

Hartol Building Deep Water Terminal at Newark

CONSTRUCTION has begun on the erection of a large deep water terminal at Doremus Ave., Newark, N. J., by Hartol Petroleum Corp., New York 20, N. Y. The installation will occupy an area of more than 15 acres and will have a capacity of 1,000,000 bbls. for the storage of petroleum products.

Atlantic Coast Terminals, Inc., a wholly-owned subsidiary of Hartol, is building the plant, which is expected to be in operation by the Fall of this year. Hartol covers a distribution area extending from Maine to South Carolina, with 19 terminal points.

Heavy Oil Distributor

HOLMES HAS DEVELOPED 80% OF INDIANAPOLIS GALLONAGE IN 13 YEARS

by
Robert Gray

COMPETITORS WERE SHOWING little or no interest in heavy fueloil business for Indianapolis back in 1937 when M. C. Holmes, president and principal owner of Associated Service Corp., took a good look around and decided they were missing a bet. Industrial coal was cheap, with the low grade bituminous mines only a stone's throw away in southern Illinois, but Holmes was reasonably sure that there would be a number of industrial situations in the city that could use oil more effectively than coal, even though more expensive.

Carrying the same conviction through 13 years since that time, his organization has developed 105 heavy fueloil accounts that consumed last year a little over nine million gallons . . . two-thirds of it No. 5 and one-third No. 6 oil. To say that Holmes "developed" the business is using the word correctly. Not more than six or eight of those accounts had previously bought oil from other suppliers. All of the others had been coal users when Holmes or his men found them and they were sold Johnson oilburners, for which Associated is a dealer.

The company name, Associated Service Corp., is, to say the least, unusual for a large oil marketer and it was interesting to make inquiry about its origin. Holmes explained that back in 1923 he decided to enter the gasoline jobbing business and needed some new approach, because the market was full of jobbers and highly competitive.

He devised a cooperative scheme through which he lined up a number of service station owners on a profit sharing basis. The company would supply all of their petroleum needs and then at the end of the year would split its profits with them based upon their gallonage bought, and give them this dividend in the form of company stock rather than cash. This plan was in effect for only the first few years until the company built up a substantial volume and became well established in the market. Then Holmes started buying back the stock whenever he could, and by now he holds all of it.

The company still sells gasoline through ten of its own stations and 15 others, owned by the operators, but its seven million gallon gasoline volume is on the low side compared to 14 million in fueloil, of which nine million is heavy oil and five million distillate or home heating oil.

Development of the distillate business also started in 1937, with Holmes selling the Auburn burner . . . he still does. The company now has just under 2,000 home heating oil accounts and about 100 commercial and industrial users of this light fuel. Operating a degree-day system from the start, Holmes is proud of the company's record of only five run-outs in 13 years. The fact that it was the first automatic delivery system in the city gave him something unique to advertise for a flying start.

The city of Indianapolis now has about 12,000 gun burners operating and 6-8,000 rotary and vaporizing types, according to Holmes. Associated continues active in home burner sales, using four radio spots a week, offering a burner installed for $338.50 with payments $10.80 a month.

The home oilburner installations have provided some of the best leads for the large commercial and industrial jobs. Business men with home burners would begin to take more notice of the large amount of labor and fuss and bother with coal firing at their factories.

It worked the other way around, too. When Holmes could sell an industrial oilburner installation a large number of the officials and employees of the company had their first experience with carefree heat, and became top prospects for home burners. These inter-relationships between home and factory have been a prolific source of residential burner sales. In fact, says Holmes, considerably more than half of their 2,000 distillate burner accounts came through customer recommendations of one sort or other.

Competitors Uninterested

In launching into the heavy oil business, Holmes had only minor competition at the start . . . majors didn't particularly want the business then, because in the face of cheap coal it was hard to sell, and moreover each possible prospect needed a lot of individual study, often involving deals of a very special nature, the type of deals hard to negotiate through the remote management of largest companies. Today several of them do want such business and offer brisk competition for some of it, but Holmes is still able to claim 80% of the city's gallonage.

The war helped, with its speed up of industrial growth around Indianapolis. The coal strikes helped even more, as industrialists reached the limit of their patience with John L. Lewis. In 1949 the new heavy oil installations by Associated numbered 30 and there have been 15 more in the first half of this year. Now there will be a gap in the growth curve for at least a few months because all available residual fuel in the area is pretty well nailed down, and Holmes always works on supply first, then goes after customers.

Steam coal at $12.00 a ton, the going rate in Indianapolis, is equivalent to No. 6 oil at around 7.1¢ a gallon. Through most of this spring the actual oil price was around 8.1¢, so the industrial users reckoned that it was worth that much more than coal parity. At 8.1¢ in the city, Holmes' margin was 1.45¢, and in maintaining this margin he more or less established the selling prices for the market. The market as a whole has been following Holmes on residual prices rather than any major seller.

One significant phase of Associated's business has been acquiring a large fleet of over-the-road transports. The company regularly operates six of these on heavy oil, four on light oil.

The trucks go as far as 145 miles to pick up the product, although some of the hauls are from a nearby refinery only 15 miles away. A circle of 120 miles radius around Indianapolis will embrace a number of refineries, including one or two large ones, several pipeline terminals and also the important Ohio River distributing points of Ashland Oil & Refining. Back in 1937 Holmes hauled all of his fueloil from Louisville.

Over-the-road transports could be hired from regular commercial firms for about the same cost as operating a private fleet, in Holmes' opinion, but the private fleet has the advantage of much greater flexibility and can afford to render better service to the customers.

For example, the company wants to make all deliveries to factories and commercial establishments during the regular eight hour working day, and it is near impossible to get this service from commercial transports.

Truck Size and Rates

Typical commercial rates for a 4,000 gallon transport range from 67¢ a mile on a 15-mile haul down to 20¢ a mile for 100 miles. Holmes can match this with his own trucks providing they run 4,500 miles a month, and with this small mileage requirement the men have time to treat customers just the way they like it.

Using 4,000 and 4,400 gallon transports the company has worked out its own hauling cost scale based on cents per gallon per mile. As an example, a 15 mile haul costs .34¢ per gallon; 100 miles costs 1.14¢ a gallon.

About one-fourth of Holmes' heavy oil business is not in Indianapolis; it's scattered over the state here and there, wherever his men could develop a good prospect. The most remote customer is the State Hospital at South Bend, considerably nearer the Chicago market than Indianapolis, but Holmes was able to make a favorable supply deal at an Ohio refinery.

On these out of town arrangements four considerations must be brought into harmony . . . the customer's needs, the dependable residual supply source for that individual commitment, the delivery distance and expense, the fuel price related to coal or gas. Sometimes it takes weeks to find the right balance, but when a heavy oil prospect has been through all of the preliminary negotiations described and makes up his mind to go ahead he's been pretty thoroughly sold and will remain a good account through many years if treated right.

In this short study of Holmes and his success in petroleum marketing, two or three characteristics stand out. He has imagination, a flair for new methods. In starting his gasoline business in 1923 he might have built up volume by underselling the established market, but he chose rather to maintain higher prices and give his dealers a year-end bonus in stock equal to a share of his profits on their purchases. This proved quicker and everyone profited.

When he decided in 1937 to get home heating oil business, he again might have initiated a cut price campaign but chose the other route. With his degree-day system he dramatized and merchandised a superior service at the same price. This sense of superior service at a fair price, as contrasted to minimum service at a sharp price, has also characterized his residual business. He might have chosen to run his transports 24 hours a day, delivering at all hours; he might have determined to minimize all service and expense to try and get down to equal the actual coal cost. He elected rather to build this industrial business on exceptional performance at a fair price. That kind of customer is twice as hard for a competitor to unseat as one who has been taught to think of price alone.

"I'm a busy man, Higgins. Suppose you make a list of the cute things your baby said and leave it on my desk"

Industrial Warm Air Heaters

THREE APPLICATIONS OF OILFIRED "COUNTERFLO" UNITS FOR OPEN AREA HEATING

THE MOST IMPORTANT recent development in direct fired warm air furnace units for heating open area structures probably has been the increased application of automatic oilfired equipment in installations such as described herein.

All three of the units illustrated are made by the Dravo Corp., Pittsburgh 22, Pa., one in a new manufacturing plant for steel strapping near Baltimore, another in a Diesel locomotive maintenance shop in Michigan and the third in a Quonset structure for a radio manufacturing plant in Kokomo, Ind.

The installation in the steel strapping plant represented a peculiar problem in that the Dravo units were used to prevent cold air from rushing in through frequently opened 7′ x 8′ railroad and truck shipping doors for "pressurizing" the interior of the factory building. Ventilating equipment removes some of the air from the tightly built structure and only a small amount of air can infiltrate. Consequently, mechanical means had to be devised to keep the plant interior under positive pressure.

If a negative pressure existed in the building, 360 ft. long by 140 ft. wide by 26 ft. high, excessive amounts of cold air would be sucked into the building when the extra large doors were opened. The building is undivided by partition walls except for offices and locker rooms, with about half the floor space used for manufacturing steel strapping and the other half occupied by the packing, shipping and receiving departments.

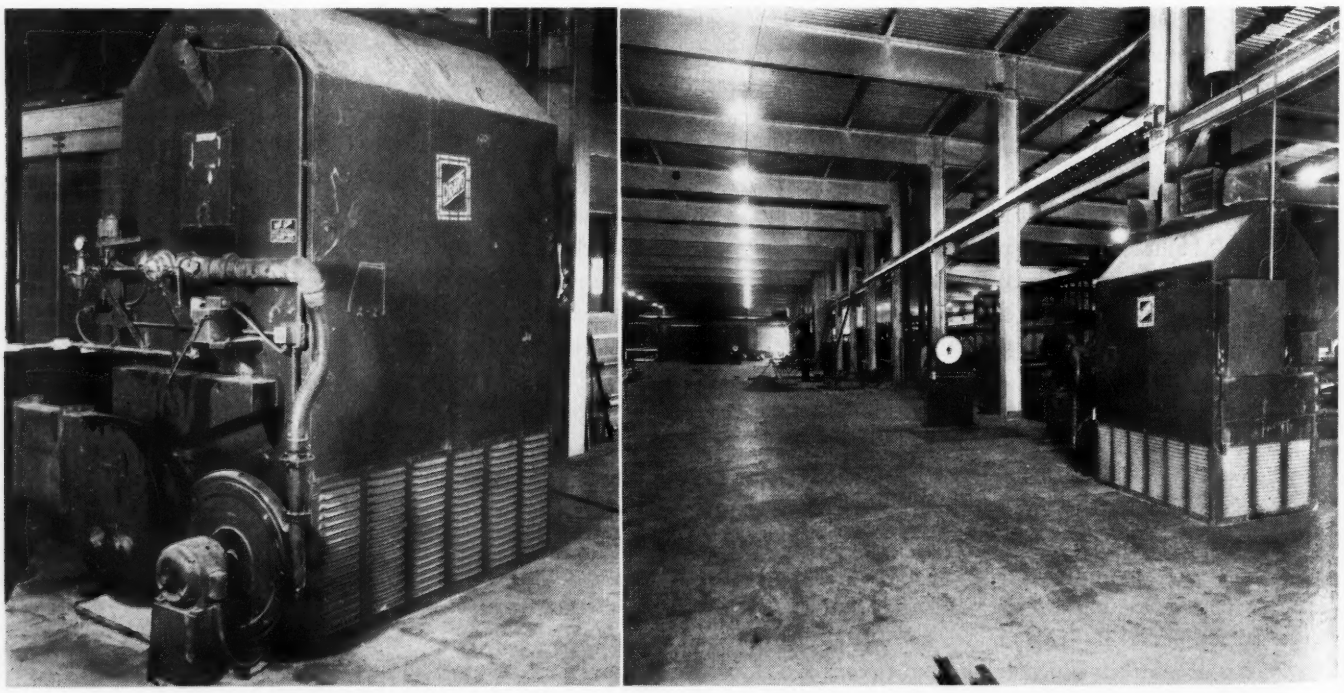
By using oilfired heating equipment that pulls in fresh air from outside the building through a duct, heats and distributes it throughout the building, the air pressure remains balanced or, at times, becomes positive. This minimizes the amount of cold air that enters the building through open doorways because it builds what amounts to a wall of warm air to repel the cold.

Three Dravo "Counterflo" direct fired warm air heaters are used, each with an output of 1,250,000 Btu/hr, handling 14,000 cfm and servicing about 15,000 sq. ft. of floor area. Two operated on recirculated air, the third, located in the center of the building, has a fresh air intake duct and can operate either on fresh or recirculated air. The intake duct, made of sheet metal and measuring 25″ by 54″, leads from one side of the base of the heater through the roof of the plant, with manually operated dampers. These are tied in with a mechanical interlock to prevent the possibility of too little air passing over the stainless steel combustion chamber.

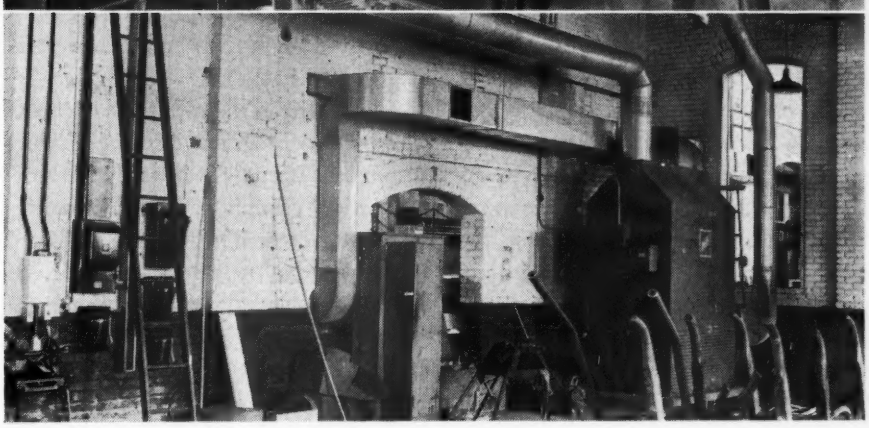
Manually ignited No. 5 oilburners fire the heaters, equipped with auxiliary blowers for combustion air. A modulating type control system is used. Fueloil is stored in two 10,000 gal. underground tanks outside the building, with pumps to pull the oil through a 2″ piping system located inside the concrete block structure.

The balance of the plant, including offices, are warmed with small individual heaters.

After the Detroit & Mackinac Railway switched from steam to Diesel locomotives it revamped its repair shops at Tawas City, Mich. and converted its machine shop for Diesel maintenance. D & M also modernized the heating system in its shops by replacing a boiler plant and overhead steam radiators with four oilfired, warm air space heaters. Besides heating the shops to a comfortable working temperature, not always possible with the previous arrangement, the



Interior view *of the Signode Steel Strapping company's plant and a close-up of the burner side of one of the Dravo units which heat it. In the lower right portion of the picture of the unit can be seen the auxiliary blower used with the No. 5 oilburner.*



Top: *Repair pit in the Detroit & Mackinac Railway's Diesel locomotive maintenance shop.* **Bottom:** *A direct fired space heater is located along the wall in the Diesel repair areas for comfort heating. Warm air to melt snow and ice from the locomotives is delivered to the pits from a heater in another room.*

new system also provides heat to melt snow and ice from the trucks of locomotives in for maintenance or repairs and insures ease of starting in cold weather by warming the piping and engines in the locomotives.

Heaters used in this installation have an output capacity of 750,000 Btu/hr each, with one heater located in the locomotive maintenance area to maintain a temperature of 70 degrees, another in the adjacent blacksmith-carpenter-welding shop area. A duct from this heater carries warm air at high velocity to the repair pits. The duct branches into four outlets, two on either side of the pit, so that heated air can be blown directly at the locomotive undercarriages.

The other two heaters are used for the car repairing department, stock room and a small office.

All the heaters are controlled automatically by thermostats, with temperatures reduced to 50 degrees at night.

An example of the originally designed temporary Quonset buildings used for permanent structures is the unit used by a radio manufacturing plant in Kokomo, Ind. The building, measuring 320 ft. long and 80 ft. wide, is used for a receiving department, some inspection procedures and warehousing facilities.

To heat the building's 25,600 sq. ft. of floor space, two "Counterflo" heaters are employed, one having a capacity of 1,250,000 Btu/hr and handling 17,000 cfm, the other delivering 750,000 Btu/hr and handling about 8,500 cfm. Only three connections—power lines, fueloil piping and vent stack—had to be made after the heaters were positioned in the building.

The larger heater takes care of about two-thirds of the building, partitioned off from the other part.

These heaters, as well as the others, operate on the principle of working level recirculation of warm air. With this method, air is drawn into the base of the heater from the floor, passed over two staggered banks of economizer tubes leading to the vent stack from the combustion chamber, then upward through the heater sweeping over a stainless steel combustion chamber. The heated air is discharged, after converging in a short plenum, through directional discharge nozzles on top of the unit.

The heaters can be moved and reconnected at a new location in a few hours, or ducts can be attached to one or more of the discharge nozzles to carry warm air to more distant areas. Floor drafts are negligible when these heaters are used, since air is drawn in through the base of the heater from all directions and at low velocity and discharged at high velocity over the heads of the occupants of the room.

Top: *This Counterflo oilfired heater, 1,250,000 Btu/hr capacity, takes care of comfort requirements in two-thirds of the Quonset building at Kokomo, Ind.* **Bottom:** *Exterior view of the Quonset units.*

Fueloil Heaters for Storage Terminals

NEW THOUGHT IN DESIGN AND OPERATION; EXAMPLES OF RECENT APPLICATIONS

by
R. Lisson, M.E.*

THE SEVERE WINTER of 1947-1948 saw sections of the country at times totally immobilized by snow-slogged roads and icy, freezing weather on land and sea. All forms of transportation and commodity shipments in some areas ceased for days, resulting in discomfort on many sides as food and fuel stocks ran low—with no immediate hope of replenishment.

To those charged with the responsibility of keeping the nation's critical petroleum products—such as fueloils and gasoline—moving to their markets, the lesson was not lost. They were quick to realize that their distributing system was weak under that wintry blast due to the fact that the hauls between the terminals and points of use were too great to cope with extreme weather conditions. There was plenty of gas and oil at the refineries—but when you can't get it to the consumer, what price glory?

From that realization has stemmed the heaviest program of product storage expansion in the history of the industry, a program that is still going on with no definite date of completion in the immediate future.

Until recently the practice adhered to in the distribution of petroleum products was to build the main bulk storage at the refinery, and then to deliver by barge to such water-side terminals as were in operation, or by tank carloads to the smaller local yards not enjoying such wholesale delivery facilities.

From these secondary terminals, the oil trucks would fan out to the small drops at consumer storage.

This system seemed to work out fairly well, with only a few tight squeezes now and then, until recent years. However, the skyrocketing demands for refinery products of every type has been exceeding every experienced forecast, and the old system of refinery storage, backed up by what proved to be nothing more than an inadequate number of poorly located retail distributing terminals, was unable to cope with the situation.

The one thing the refiners could not control was the weather, and as the fall and winter demands for petroleum products are in excess of the spring and summer usage, a new solution to the distributing problem was imperative. As was mentioned before, the serious oil shortage that shaped up during the severe winter of 1947-48 in many sections of the country was as much due to the collapse of the distribution system then employed, as any other reason. In spite of greatly enhanced productive capacity at the refineries, no oil could get through to replenish the exhausted stocks at the retail terminals. Storms at sea, icy roads, and freezing weather stopped the normal channels of distribution for days.

New Storage Plants

The solution to this serious problem was obvious,—the erection of more product storage as close as possible to the points of heaviest consumption. These new storage plants had to be large enough in capacity, and numerous enough in relation to points of consumption, to permit the accumulation of storage stocks during the open delivery season of sufficient magnitude to insure continued peak winter deliveries for a reasonable length of time, even in the face of a complete stoppage of normal replacements.

This new conception of off-the-refinery storage close to points of usage, helps the refiner as well as the consumer. The latter is now more certain than ever of continued deliveries at all times—and the refinery benefits by being able to operate on a more steady output basis. Instead of varying its current refinery production with every rise or fall of the thermometer, the changing seasonal requirements can now be taken care of by drawing on stocks in storage.

With this new double-barreled solution to a serious production and distribution problem thoroughly mapped out, the refiners and many of the major terminal operators went to work. Millions of gallons of new product storage were contracted for, and though a temporary steel shortage in 1948 interfered somewhat, the program got under way reasonably fast.

All sections of the country have benefited by this program. Many operating terminals materially increased their storage capacity, and huge new depositories have been erected where none existed before. Typical of the new or expanded terminals erected along the Atlantic seaboard in the past few years is the huge Buckley Bros. plant in Bridgeport, Connecticut. Prior to the completion of that terminal last year, Bridgeport's industries could get No. 6 oil only through long expensive truck haulage from other cities. Now ocean-going tankers tie up the Buckley terminal dock in Bridgeport Harbor, to unload their tremendous cargoes into the multi-million gallons of storage set right in the heart of that great industrial city.

New York City, which probably has had more bulk fueloil storage capacity erected to serve its needs than any other city on the Atlantic seaboard, will soon have another one right on Manhattan Island. The only terminal that existed on that tight little isle was lost several years ago to make room for the new

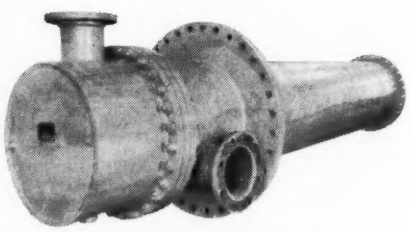


Fig. 1 *(top). Tank suction heater from the inboard or tank end.*

Fig. 2 *(bottom). Tank suction heater with extra flange on inboard or tank end.*

*Sales manager, Davis Engineering Corp., Elizabeth, N. J.

home of the United Nations. The Island Petroleum Corporation plant in Queens, the newly opened Deep Water Terminal in Brooklyn, and the new Paragon Oil Company Terminal in Newark are only a few of the additional facilities erected to take care of the oil heating requirements of the populous and highly industrialized Metropolitan New York area.

The natural result of this widespread increase in the availability of fueloils strategically stored, was the continuation of the high rate of oilburner installations, both of the domestic and industrial type, that started several years ago. The oilburner industry is now enjoying an unprecedented volume of business in oil consuming areas, and in full knowledge of the competition looming up from natural gas, nevertheless should, as a whole, trod that happy path for some years to come.

Modern Storage Terminal

The modern bulk fueloil storage terminal embraces every possible facility or design feature pointed toward its sole purpose—the rapid, efficient, and economical handling of fueloils. Many large tidewater terminals move fueloils not only through transport trucks, loading at the rate of about 300 gallons per minute but also resell in bulk via barge deliveries—where the rate of loading may go as high as 2000 gallons per minute!

This high rate of oil movement must be facilitated every step of the way. For the rack loadings, carefully planned one way traffic lanes permit steady streams of trucks to enter the yard, get under the filling spouts, load up, and get out without any backups or side steppings. Hub-like station layouts, with every loading rack in full view of the control room, and rack meters, synchronized with ticket printing registers in the terminal accounting office, are some of the new operational features found in the modern terminals. As a result, the terminal operator gets an increased output per rack, per day, and the transport owner gets an increased delivery mileage as well.

Behind all of this speedy handling of the fueloil is a modern high-capacity fueloil preheating system. Every terminal handling No. 6 oils must have such oilheating facilities, and the better equipped light fueloil terminals also include such equipment. Fueloil in most states—Connecticut being a notable exception—is sold by the gallon corrected for temperature expansion above a 60° F. base. In cold weather at ambient temperatures around 30° F. to 40° F., the yard that does not have oil preheaters for their light fueloils can easily lose about 1½% of their gallonage through oil shrinkage—and it is amazing how many such yards do not even bother to make the necessary temperature adjustment—to say nothing of the increased fixed charges per gallon due to excessive pumping costs.

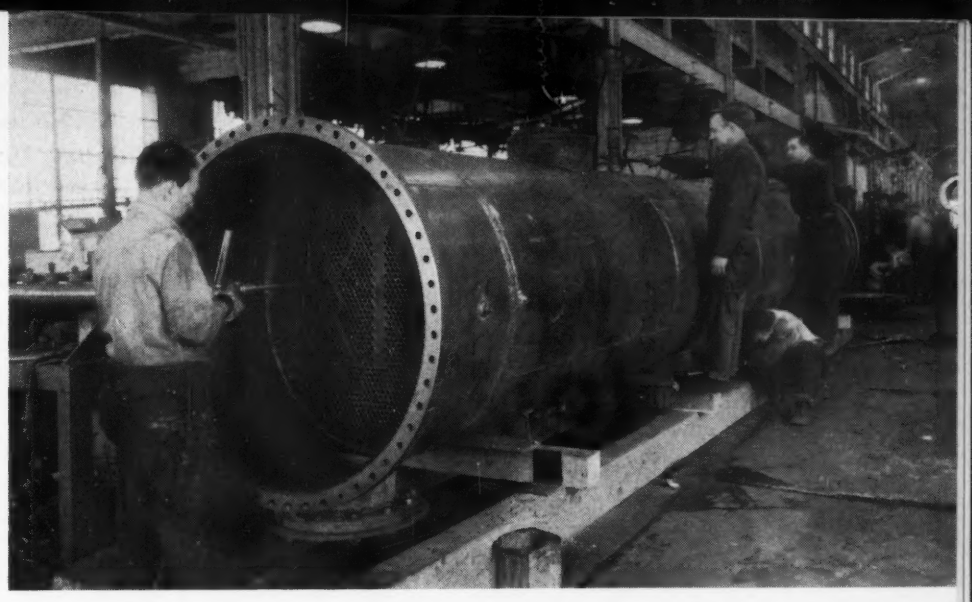


Fig. 3. *Large line heater under construction at Elizabeth, N. J., factory of Davis Engineering Corp.*

The story behind these large terminal oil preheaters—the problems involved in their design, fabrication, and operation may be of interest.

Tank Suction Heaters

All bulk oil pumping systems divide their preheating loads into two steps—before and after the transfer pump. For a long time, it was the custom to preheat the oil in the storage tank by means of pipe coil grids covering the bottom of the tank. This method is subject to censure as it entails heating the entire tank contents when only a relatively small portion of the volume may be wanted, even at heavy loads. When the rate of withdrawal falls off, the steam loss through unnecessary heating and radiation losses through the tank walls become excessive.

Some operators even subdivided their tanks with crescent-shaped partitions to confine the heated oil—but that system did not solve the problem.

The present practice followed by all modern terminals is to use the tank suction heater, in which only the oil being withdrawn is heated, with the rest of the storage being left untouched. As the temperature gradient in large tanks holding upwards of a million gallons of No. 6 oil is relatively low, the high-capacity tank suction heater, with its definite economy in steam requirements, is rapidly superseding the tank coil technique.

The tank suction heater consists of a number of U-tubes expanded into a steel tube sheet, and housed in a steel shell bolted to an outside tank nozzle by means of a matching shell flange. The major portion of the heater shell, and practically all of the heating tubes, lie inside the tank. The inboard end of the shell is open to the tank contents. The oil outlet connection is at the head or outside end of the heater. The oil being withdrawn from the tank enters the open end of the shell and moves along the length of the heating tubes, picking up temperature and gradually reducing its viscosity to the most economical pumping range.

As only the oil being pumped is heated, no preliminary tank heating is necessary. Oil starts to flow almost immediately, and when pumping stops, the steam flow stops almost simultaneously, as it is under thermostatic control.

Figure No. 1 illustrates a Tank Suction Heater, from the inboard or tank end. The generous oil inlet area provided at the mouth of the shell insures relatively low entrance losses, hence pumping costs are at a minimum.

The shell matching flange that bolts to the tank nozzle can be seen just to the right of the PARACOIL label, with the steam inlet connection at the top of the steam chamber and part of the offset welding-type oil outlet connection just visible at the bottom of the shell matching flange. Inboard heater shell supports are provided in the tank to reduce the load of the heater overhang on the tank nozzle.

An interesting variation from the usual tank suction heater design is shown in Figure No. 2. This unit is one of a pair installed at the Rome, New York, terminals of the Sears Oil Company. Its special feature is the inclusion of an extra flange at the inboard or tank end, to which a 24" gate valve is attached. This valve is operated from outside the tank, permitting the complete sealing off of the heater shell from the tank contents in the remote possibility of any repairs requiring the withdrawal of the tube bundle. The Sears Oil Company receives its stocks by barge deliveries via Erie Canal, which is colsed to traffic every year from November till the following spring. It is essential, therefore, that this terminal keep all its tanks in operative condition throughout the winter. Any repairs to tank or tank heater must be made immediately, and without the shutoff valve, it would be impossible to withdraw the tube bundle if such a step would be found necessary. It is possible to open the steam head and expose the heater tube sheet without difficulty on any U-tube type tank heater, but the tube bundle itself cannot be withdrawn when the tank contains oil without this heater shutoff valve.

In the design of the tank suction heater, oil velocities are kept low, in the order of one ft. per second or less for No. 6 oil, and about 4 ft. per second for No. 2 oil. Pressure drops through the heater are kept at about 2 ft.

Oil outlet temperatures are kept at about 110° F. for No. 6 oil. Where No. 2 oil is being handled, heat is only added as is necessary to bring the temperature up to the 60° F. base, at which the oil is sold.

Discharge Line Heaters

For deliveries by transport truck or barge, a final temperature of about 140° F. to 150° F. had been found most satisfactory for No. 6 oil, although this temperature may vary with the viscosity characteristics of the oil and the season of the year. For this additional boost above the 100° F. exit temperature at the suction heater, No. 6 oils are further heated by line type discharge heaters on their way to the loading racks or barges.

These line type heaters differ in design from the suction type in several important features. In the suction type, the steam is in the U-tubes, with the oil in the shell, on the outside of the tubes. In the line type heater, straight tubes expanded at each end into serrated tube holes in separate tube sheets are used, with the oil in the tubes, and the steam

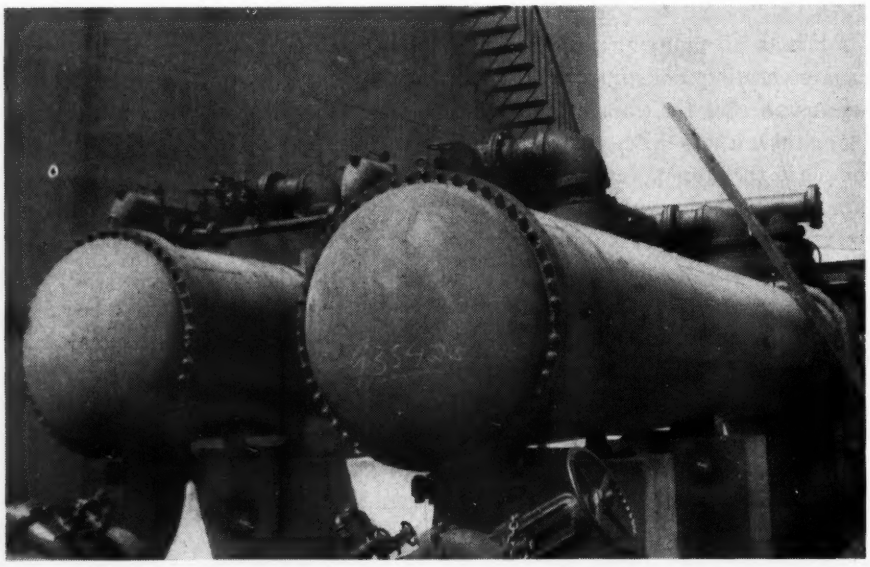


Fig. 4. *Two large line heaters for No. 6 oil being installed at Buckley Bros. Terminal, Bridgeport, Conn.*

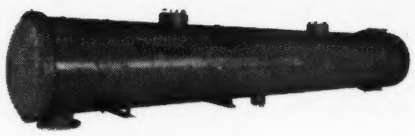


Fig. 5. *Line heater, illustrating split ring shell expansion joint on the right-hand end.*

in the shell. Figure No. 3 illustrates one of these large line heaters under construction at the shops of the Davis Engineering Corporation in Elizabeth, New Jersey.

It is interesting to see how closely the tube sheet layout resembles those of a steam condenser. Note the calculated paths providing equal distribution of the heating steam throughout the entire tube bank.

Removable cover plates are provided at each end of the shell to permit access to the tube ends for inspection.

In the line heater slightly higher oil velocities and pressure drops can be allowed. Oil velocities run about 2 ft. per second for No. 6 oil, and pressure drops as high as 10 lbs. are permissible, as we are now working on the discharge side of the pump.

Figure No. 4 shows two large line heaters for No. 6 oil in course of erection at the Buckley Bros. Terminal at Bridgeport, Connecticut. The righthand heater is for barge loading and has a capacity of 1750 gallons of No. 6 oil per minute, and the other heater for rack loadings, has a capacity of 1500 gallons of No. 6 oil per minute. In physical size, however, they are among the largest terminal heaters installed in the East.

Shell Expansion Joints

With upwards of 15 tons of steel going into some of these large line heaters, it is necessary to compensate for any difference between shell and tube expansion and contraction movements, otherwise severe damage can be done to the heater. A typical solution is the split-ring shell expansion joint used in all PARACOIL line type terminal oil heaters.

With this expansion joint, the heater shell is cut into two pieces, with each section welded in turn to one side of a split "doughnut" or ring of pipe running all around the diameter of the shell. The split ring acts as a bellows, expand-

(Continued on page 155)

N. E. Forum, Gas Invasion

NO CAUSE FOR ALARM IF DILIGENCE AND VIGOROUS SALES PROMOTION ARE USED

THE PRINCIPAL BUSINESS session at the June Convention and Exposition of the Oil Heat Institute of New England featured a four man forum discussion on gas competition. The participants were Charles R. Collins, executive vice-president, Gerotor May Corp., Baltimore, K. E. DeRosay, national fuel-oil department manager, Sun Oil Co., Philadelphia, and Harold M. Mottram, executive secretary, Wisconsin Oil Heat Assn., Milwaukee. Robrt Gray, editor of FUELOIL & OIL HEAT, was moderator.

Significant paragraphs from each of the three papers are reproduced. The first are from the paper by Collins:

"It has been interesting to watch the solidifying of our industry thinking as to the threat of gas. Two years ago we were very much the gentlemen and raised our eyebrows at the thought of talking about gas in public. Today, we all talk about the 'Battle of Fuels,' the 'Invasion of Gas' where a few years ago we talked about gas as 'another fuel.'

"Now words like 'battle' and 'invasion' are commonly associated with warfare. If it is warfare we are engaged in, let's conduct it like a war.

"Competitive warfare is not new to our business. For over twenty-five years oil burner manufacturers and dealers have been engaged in a very spirited life and death battle for the consumer's dollars. We have had every type of competition — automobiles, refrigerators, radios and — more recently television. Our main proposition to the consumer has been neatly summed up by A. T. Atwill, president of the Oil-Heat Institute of America. He says we offered people 'Heat without work.' On that proposition, which we alone could make, we have fared very well in the competitive battle for dollars.

"Now another group has come along with the proposition we considered our very own. Gas, too, says 'Heat without work' and tosses in some seemingly new arguments designed to put us on the defensive. And, to a very great extent, they have succeeded in putting us on the defensive. Gas has waged a very clever and successful war of words rather than deeds. This strategy is now new—it was worked very successfully for a while, you will remember, by an Austrian paperhanger.

"Let me ask everyone in the audience to honestly answer for himself one question—would you rather sell against television or against gas. With television one of the hottest selling items today, I think that most of you would rather sell against gas.

Competing With Television

"But when you stop to think about it, you are already selling successfully against television. Television hasn't hurt our sales and yet we are competing for the same consumer's dollar. If we can successfully buck television, then there seems to be little need for panic in selling against our new competition.

"But let's take a look at our industry from the outside—from the standpoint of an enemy trying to estimate *our* situation.

"First of all, he finds that oil heat is a well-entrenched industry insofar as public preference is concerned. He finds that oil heat is doing a substantial business throughout the country. He also finds that oil heat is not or has not been too well organized for a fight.

"Now, if you were on the other side of the fence and trying to break into the automatic heating field whether with gas, atomic energy or anything else—what would you do to put your new product into an already established field with the greatest amount of force.

"You'd organize—that's what you'd do. You'd combine all the little efforts of the members of your new industry into a large concentrated effort in order to make the biggest impression on the market. And that is precisely what the gas industry has done. Their appearance of size is actually far greater than their actual magnitude. We, who have gone about our business for many years fairly independently, are now confronted with what seems to be a Goliath marching into our province.

"The overall picture doesn't look so black. But how about the specific problems—the problem of selling in direct competition to get the order from the individual consumer for his automatic heating installation. These aren't the long-range problems—they are the specific questions you men at the dealer level must face in everyday selling activity.

"All right. Let's take a look at the ammunition the 'enemy' is using and will use against us.

"First. Cheaper installation.

"Second. Equal or lower fuel cost.

"Third. Fuel is always at the burner and ready for use and you pay as you use.

"Whether or not these three arguments are true doesn't make much difference. The important thing is that they are arguments that will make a lot of sales.

"Let's take a good look at them and see what we ourselves can use. There is a lot of economy, you know, in stealing the enemy's ammunition and using it against him.

"First. How about cheaper installation?

Low Priced Gas Burners

"It is a fact that the conversion gas burner can be installed for about $250. That's better than most of us can do. But good gas installations require far more minute inspection and supervision than oilburners do. One reason is that a back alley plumber or tin knocker can put in gas at a price when he can't do so well with a factory built oilburner or unit. He'll be far more interested then in getting gas installations than he will oil installations.

"Eventually, the main criterion in gas installation will be price and since short cuts can be taken, installation quality will suffer.

"I don't doubt that gas will pick up some present oil users who are dissatisfied with their installations, but I am quite certain that continuation of present trends in gas installations is going to

pick up a lot of customers for oil in the next few years.

"So, you see, their cheaper installation story can be used both ways—for them—or for us.

"Well, how about the question of fuel cost? In the next year or so we expect that pipelines will bring in sufficient quantities of gas to bring their costs below that of oil in some communities. But we are talking about 1950 prices!

Expect Gas Rate Rise

"If we can credit the top policy makers in the gas industry with any ability to make their predictions and hopes come true, then we can expect a tremendous jump in gas rates within the next few years.

"In 1945, gas at the well brought 3.8¢. In 1948 it brought 6¢. Recent contracts are going at 10¢. Richard Gonzales, head economist of the Humble Oil and Refining Company, predicts that within the next few years gas at the well will bring between 15¢ and 20¢—double its present well price. General Ernest O. Thompson of the Texas Railway Commission said that the price should be 44¢ a thousand.

"So much for the 'cheaper' fuel.

"How about their third argument? The fuel is always at the burner and ready for use . . . that you pay for it as you use it.

"Any soldier in the gas army can tell you more about why that argument is wrong than I can. There is not a city in America that has had gas for a long time where there is not a wide variation in gas pressures at certain periods of the year and even during certain periods of the day. The time when you need gas most—in the coldest weather—it frequently just plays the part of 'The Little Man Who Wasn't There.' And you can't call up another gas company to have them deliver a few thousand feet either. You're stuck.

"Thus, we find that on every principal advantage claimed for gas we have a positive argument on our own behalf.

"First. There is nothing costlier than a cheap installation. Our own experience proves that.

"Second. Gas rates are probably going up substantially.

"Third. Your fuel is where you want it and when you want it. You can pick and choose the supplier that suits you best and you are not forced to do business with a single company.

"But added to this you can point out . . .

"Fourth. There is no safer fuel than oil.

"Fifth. We can deliver oil where you'll probably never get gas.

"Now all these arguments don't add up to advice from me that you should be complacent about gas competition—or any other kind of competition

"Certainly, gas is going to take a sizable portion of the automatic heating market. But what we sometimes forget is that the automatic heating market is not static—it isn't just a case of having so many customers and having to divide them between oil and gas. We are truly only just launched on the era of automatic heating.

"In my opinion the promotion that the gas industry is doing for automatic heat is very healthy and very welcome. There are an awful lot of people that they will sell on the idea of automatic heat but won't or can't sell on gas heat. They'll make a lot of customers for us—more, I think, than they are going to take away from us in the long run.

"We have good, sales-making arguments.

"But to make them stick there are certain things we must do at every level of our industry.

"First, start building your sales forces. And by 'building' I mean improving both the quantity and the quality of your salesmen. Mere numbers is not the yardstick of an efficient sales force. Thorough product education, ability to competently use sales promotion ideas, and sheer willingness to work are the things you want from your men. You need more salesmen, to be sure—but you must make certain that they are the right men for the job.

"The second job to be done in carrying these sales-making arguments to the consumer with greater force is to increase your promotional budgets to reach a greater number of local prospects. The sharp upturn in advertising and promotional budgets at the retail level last year was a very encouraging sign. It showed that most retailers already realize the importance of increased local promotion and are doing something about it. But more must be done.

"To sum up what natural gas competition means to the oilburner manufacturer and what we can do to meet it, I would say this:

"That gas is a formidable but not unbeatable army.

"That the number of gas sales arguments are no greater and no better than those for oil.

"That we must organize our selling and promotional efforts at both the local and national level into a more efficient and powerful force for our common good."

DeRosay Views Competitive Merits

"I AM VERY PLEASED that you have arranged this panel discussion in June of 1950 rather than at your last year's meeting. I have never had any particular satisfaction from attending wakes or mourning parties and my recollection is that a discussion of this sort if held a year ago would have been pretty much in an atmosphere of discouragement, despair and grief for the departed—the soon-to-be departed oilheat industry in New England. However, the report as to the demise of oilheat was, as the saying goes, greatly exaggerated and certainly premature. The strange part of the whole situation has been that the supposed victim has been the principal forecaster of its impending doom.

"I have never heard any claims originating with the gas producers of the southwest or the distributing utilities of the Atlantic seaboard that natural gas would eventually make automatic oilheat obsolete. While it is, of course, unwise for the oilheat industry to ignore potential competition of natural gas, it is equally absurd to become panicky and assume that within a relatively short period of time this new competitor in automatic heating will destroy the oilheat industry. Today, I believe there has been a considerable improvement in the morale and thinking of those who engage in the manufacture, installation and fuel servicing of automatic oilburners. Local oilheat associations in various states along the Atlantic seaboard are conduct-

ing a vigorous campaign to combat any excessive in-roads by natural gas and frankly, potential competition of natural gas in my judgment may prove to be an excellent development in many ways.

"It is true that present day automatic oilburners with their attendant control devices are marvelous pieces of machinery, but I am stuck with the thought that in the last ten years there has been hardly one major improvement of an engineering or technical nature. Except for improvements in physical appearance and over-all design of oilfired units, our burners of today are not very different from pre-war equipment. Possibly this gas competition already existent in some areas and impending in others may provide just the stimulus needed by the oilheat industry which will result in such improvements in engineering design and manufacturing methods as to narrow the existing advantage which gas heat enjoys in some respects.

"I am thinking of the resigned attitude so many in the industry take with respect to competing with natural gas in the new building field, where I am constantly reminded that the initial cost of the gas burner as compared to the oilburner presents an almost insurmountable obstacle in selling building contractors on the advantages of installing oil rather than gas heating. The enterprising, resourceful, and efficient burner manufacturer who is able to substantially reduce this difference in first cost between a gas burner and an oilburner will reap handsome rewards for his initiative and ability.

"When Bob Gray invited me to participate in this discussion, he stated it would be helpful to have viewpoints of an integrated oil company representative. My preceding comments to this point have no connection or relation to my business affiliations but they are points which I believe should be stressed in any discussion of this kind. Now, let's consider what are the actual facts in this present competition between gas and fueloil for their respective shares of the automatic heating market. It is obvious to all of you that as a representative of the Sun Oil Company, there can be no bias in my statements and no beating of the drums in favor of one or the other fuels. The big majority of oil refining companies in this country, integrated or non-integrated, produce heating oils and if they are engaged in crude production necessarily have large quantities of natural gas which have to be dealt with. Let's set down first some basic facts with respect to both fuels—facts which are incontrovertible and accepted as facts by all of us. We will start with heating oil.

1. An oil refinery produces three so-called principal products. gasoline, distillate heating oil, and residual fueloil.

2. The virgin distillate fractions and the residual can be cracked to increase the gasoline available from a barrel of crude.

3. It is not possible, speaking from a practical and economical point of view, to convert all of the distillate and residual into gasoline.

4. In cracking distillate and residual into gasoline, the modern catalytic cracker produces more or less as a by-product, catalytic gas oil which is the basis of our No. 2 heating oil in the principal consuming areas of the country.

5. This catalytic gas oil cannot economically be further processed so long as there is a market for it as fueloil.

6. In conclusion, the oil refining industry is keenly interested in its existing markets for No. 2 Fueloil where the product is essentially a catalytically cracked material.

NATURAL GAS

1. The production of crude oil involves the production of natural gas.

2. The natural gas so produced must be utilized. State regulatory bodies no longer will permit it to be flared. Furthermore, oil companies have spent millions of dollars since the war in the interest of conservation of natural gas.

3. As the demand for crude increases, increased oil production means increased natural gas production.

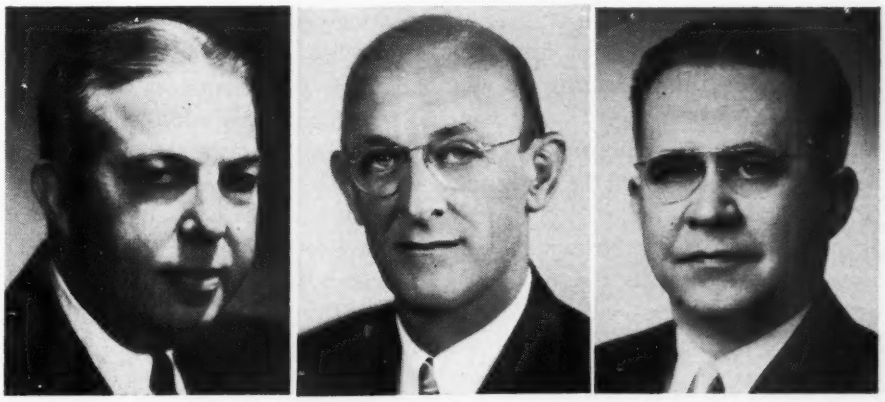
4. There are not adequate markets for the natural gas in the immediate areas where it is produced.

5. This gas must be sold in appreciable quantities in order to insure adequate crude production required to serve existing and increasing petroleum product demand. The Federal Power Commission requires as a pre-requisite to a contract between a natural gas producer and a pipeline purchaser, a proved reserve of gas twenty times that of the annual quantity to be delivered to the pipeline operator.

6. State regulatory bodies control the operation of oil wells and one of their requirements involves the maintenance of pressure at the wells and the withdrawal of the crude oil at such rates as will maximize the ultimate crude production of the field.

7. Crude producing companies have first call on the natural gas produced for field use in pressure maintenance. Regardless of the price obtainable for natural gas at the wells, their first interest is maximum crude production and for this purpose, tremendous quantities of natural gas are pumped back into the producing formations.

8. In their constant search for new sources of crude oil, the oil producing companies discover non-associated gas producing formations and as a result today own the majority of the natural gas reserves. For a long time it has been the policy of the producing companies to not produce these reserves due to the



C. R. Collins K. E. DeRosay H. M. Mottram

low field price being offered by the pipeline companies. This policy must be altered however in areas where drainage might result if the policy were adhered to. This is usually caused by a small independent operator (and God bless him because he discovers most of the oil) who has hocked himself and his friends (if he has any) to get enough money to drill a well. He finds gas and must sell it at any price he can get if he is going to continue to eat. This forces the other operators in the field to also sell the gas from their wells in order to protect their equity.

9. As proved reserves are made available for the 20-year period required by the Federal Power Commission, there will be additional gas lines built from the producing fields to the large consumption population centers, both on the west coast, in the middle west, and along the Atlantic seaboard.

"These facts lead to the following conclusions regarding heating oil and natural gas:

"The oil industry expects to continue supplying heating oil and the marketing of this product is essential to balanced refinery operation. The natural gas will move to market from the producing areas, and at the best price obtainable. Since both heating oil and natural gas find their largest markets in the same areas, there is bound to be competition between the two products for customers. There is no indication that either fuel can obtain such an overwhelming percentage of the potential business as to relegate its competitor to a minor role.

New England Most Favored

"The cost of moving natural gas from the field to the ultimate consumer varies directly with the distance involved. Therefore, you New England dealers should be in a better competitive position price-wise than other areas of the country since you will be at the end of the longest natural gas pipelines. The fact that established rates for natural gas or mixed gas in such cities as Baltimore and Washington are currently in excess of heating oil prices indicates that natural or mixed gas in New England if presently available, would represent a more costly fuel for the home owner.

"There are some 12 to 15 better makes of automobiles in this country, any one of which will give the purchaser satisfactory service. They are all fundamentally similar in their basic design, both functional and style-wise. The difference in the individual success of these various manufacturers in selling the public is the degree of intelligence and ability, imagination and initiative of their sales organizations, all the way down the line from the manufacturer to the distributor, to the dealer, to the salesman actually on the firing line. The oilburner industry in the future can no longer rest on the assumption that Mr. Home Owner is going to buy an oilburner and it is only a question of which burner. The home owner in our larger cities now has the choice of buying automatic gas heat or automatic oilheat. This industry's job is to convince him that oilheat is the best buy, considering all factors in the situation—first cost, cost of fuel, dependability, comfort, cleanliness, and month-in and month-out dependable satisfaction plus the added advantage of being able to select the organization with whom he will do business. Furthermore, adequate stocks of fuel will be available within a few miles of his home, which represents considerable more assurance of uninterrupted supply regardless of weather conditions than a 3,000-mile pipeline originating in the southwest.

No Forecast Beyond 1952

"It becomes increasingly difficult to forecast what the situation may be after the presently contemplated natural gas lines have been completed in the next 2 or 3 years. In addition to gas for home heating, utilities will necessarily have to sell large quantities to industrial plants in order to provide the base load, which is necessary to justify the year-round transportation of gas through the line. Gas will thus supplant to some extent industrial fueloils and coal, and the extent to which liquid and solid fuels may lose business to gas is not solely one of price. In the middle west where gas has been available for years, in some cases at prices well below the cost of fueloils and coal, other factors have influenced the continued use of these latter fuels and in the seaboard markets of the New England and Middle Atlantic states, the gas industry will find the competition for fuel markets more effective and difficult.

"In spite of the fact that each year new NET additions to proved reserves of natural gas show about twice the volume increase as current consumption, the 20-1 ratio between proved reserves and annual sales through pipelines required by the Federal Power Commission indicates a considerable decline in the rate of increase of additional gas available for delivery into this area within the next 2 to 3 years.

Gas Limited by Pipes

"We should all keep in mind that there is an economic limit to the potential customers that can be supplied by a gas utility. As the load on the present distribution system increases, even allowing for the increased BTU value of the mixed or natural gas, there will come a time when lines must be replaced to carry higher pressure or increased in size in order to move increased volume, and the potential distribution capacity of these lines must be geared to the coldest day of winter. The increased capital expenditure in this connection means increased earnings will be required to amortize and earn a return on the money. As existing gas rates do not adequately cover this contingency, an increase in rates is something that might be anticipated by the gas user. And remember there is no competitor who can offer better service or lower prices. A gas customer must buy from one source.

"Another encouraging factor for oilheat is that new building today is most generally going on in suburban areas where the concentration of homes per mile of gas main will be considerably lower than in the built-up metropolitan area. There are suburban sections of Philadelphia currently being developed where gas lines are not being installed since the potential customers for gas may be 6 to 10 houses per block rather than 20 to 30 customers on existing gas mains in metropolitan areas.

"My company distributes heating oil in approximately 20 metropolitan areas in New England, the Middle Atlantic states, Michigan and Ohio. In many of these areas, natural gas has been available for years. Natural gas will be available in additional areas by the end of 1950. In all of these cities, oilburners are still being sold and the consumption of

(*Continued on page 146*)

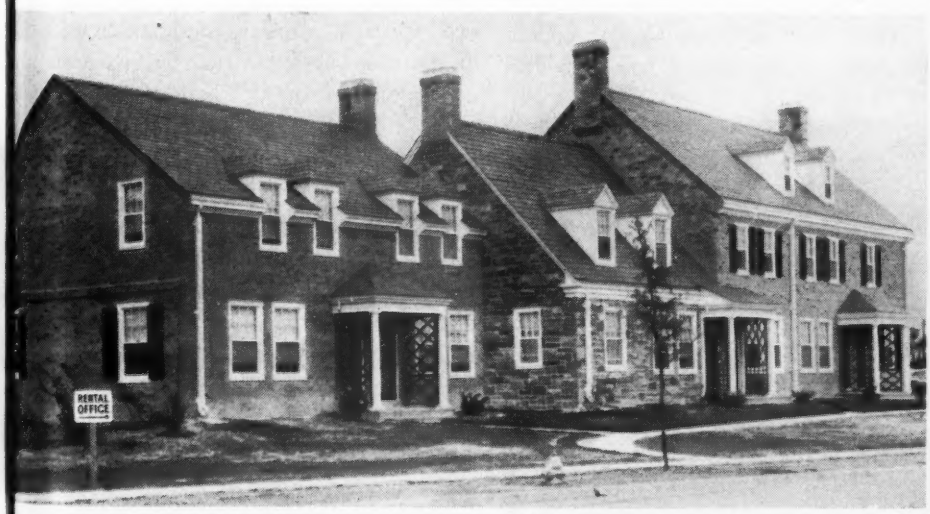
Largest Garden Apartments Convert Central Plants to Oil

by
Sidney Edelman

LAST SUMMER, WHEN THE thermometer was hitting the high 90's, workmen were busy converting the heating plants in Fairlington from coal to fueloil. The largest garden apartment development in the world was no longer a customer for coal.

Astride the recently completed Henry G. Shirley Memorial Parkway in Virginia, 10 miles and 12 minutes from Washington, D. C., Fairlington covers an area of 322 acres. It has 3439 apartment units, all of brick construction, ranging from one bedroom apartments to three bedroom duplexes. Mr. William A. Ziegler, general manager of the Fairmac Corporation, which owns and operates Fairlington, estimates the population of the development at three and one-half persons per unit. "And that's a conservative estimate," he hastens to add. With a population of over 12,000, Fairlington is the equivalent of a fair-sized community.

Built during the war by the Defense Homes Corporation, and acquired by Fairmac in 1947 for an estimated $35,000,000, Fairlington is divided into 34 blocks. Each block has its separate heating plant, located in the block. Prior to the conversion to oil, Fairlington used about 23,000 tons of coal annually. Mr. Ziegler, who made the decision in favor of the change, listed the factors which prompted the expensive undertaking.



"First," he said, "is economy. There are no ashes to be removed, and the amount of labor required to run the plants now is far less than we needed when on coal. Each of the 34 heating plants has its own 5000 gallon fuel tank, and is thermostatically controlled to assure an even temperature of 72 degrees in the units on the block. They require only routine checks for their continued operation."

"Then, the price of coal has been steadily rising, and we could not see any leveling off in sight. We were spending over $200,000 a year for coal, with no assurance that this cost would not continue to increase. We expect to use between 3 and 4 million gallons of fueloil a year, we can realize substantial savings in fuel costs."

"The second consideration," Mr. Ziegler continued, "was cleanliness. Every time a load of coal was delivered to a plant, a lot of coal dust was blown about. Even with the most careful controls, we had a certain amount of smoke, soot, and fly ash. I don't have to tell you what our tenants said about that."

"The recent coal strike," Mr. Ziegler went on to say, "confirms our judgment on the third item. With the responsibility for the comfort of nearly 3500 families, many of them with small children and infants, we wanted a fuel whose supply was plentiful and not subject to interruption whenever the temperature dropped. Oil is such a fuel."

Gas for heating was not seriously considered because Mr. Ziegler felt that the supply in the area would be inadequate for the development and there was no indication when the supply would be increased. Moreover, the cost of gas heating in the Washington area is estimated at around 35% above the cost of oil heat.

Top: *Exterior view of one of the units in the Fairlington garden apartment development. The entire area encompasses 322 acres, with the project divided into 34 blocks, each of which has its own separate heating plant.*

Bottom: *Air view of Fairlington, described as the world's largest garden apartment. It was built during the war by the Defense Homes Corp., and acquired by the Fairmac Corp. in 1947 for an estimated $35,000,000.*

Crotty Adds Equipment; Improves Boiler Models

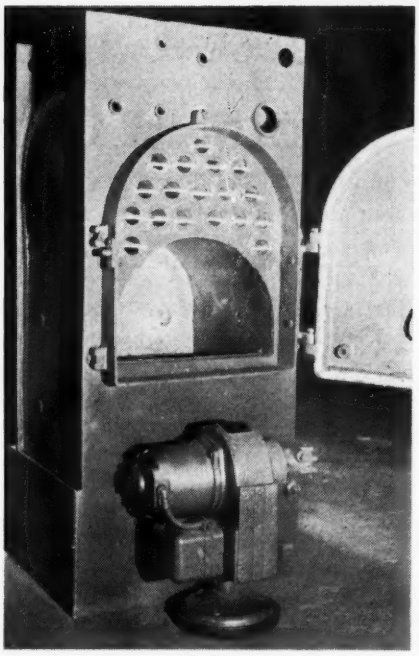
ADDITIONAL EQUIPMENT has been added to the boiler manufacturing facilities of the Crotty Mfg. Corp., Flushing, N. Y., according to Michael C. Crotty, president. Mr. Crotty, who explains that his organization has been identified with the oilheating business for twenty years, entered the manufacture of domestic boilers in 1946 and since then has invested constantly in plant equipment.

The most recently installed production equipment includes a shearer for cutting heavy boiler plate and a machine for rolling the plate and forming boiler tubes. Both machines are part of a continuing program that Crotty has conducted to improve plant facilities.

The company has made and shipped more than 40,000 steel boilers, says Mr. Crotty, and announced recently several design changes that have been incorporated in both domestic and commercial heating boilers. Included are increased furnace volume, extra high firebox for complete absorption of heat release and special combustion chamber design. Also, instantaneous and tank type heating coils have been improved and relocated for greater and faster heat absorption and a single door opening provided for easier inspection and cleaning of tubes and chamber. Finally, the boilers have undergone a complete jacket streamlining to improve appearance.

An addition to the line is the new model D.B. steel boiler for domestic heating. It is available in four sizes, model 24 D.B. rated at 400 sq. ft. of steam, 640 sq. ft., hot water; 36 D.B., 550 sq. ft. steam and 880 sq. ft., hot water; 41 D.B., 700 steam, 1120 hot water and 58 D.B., 900 steam, 1440 hot water. All ratings are S.B.I. net.

These, and all other Crotty models, including Scotch Marine boilers in sizes up to 15,000 sq. ft. E.D.R., are manufactured in accordance with the ASME Code and SBI regulations, both of whose seals appear on finished products. In addition, each is tested in the presence of an inspector of the Ocean Accident and Guarantee Co., Ltd., who affixes the stamp of the National Board of Boiler Inspectors on each approved unit.

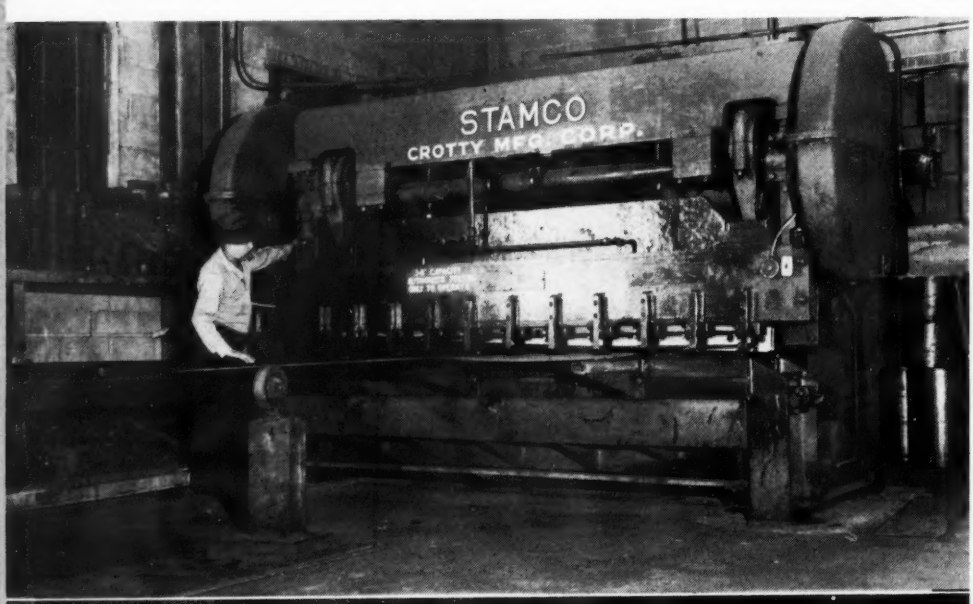


Model D.B. *steel boiler recently announced by Crotty Mfg. Co.*

In reviewing company policy, Mr. Crotty points out that it was his personal belief that "whatever money was available should be spent on plant improvement first." As a result, emphasis has been placed on manufacturing and production facilities rather than on sales planning. But, with the addition of these latest machines, Mr. Crotty indicates that "we are ready to proceed. Our first mission has been accomplished. We are in the steel boiler business to stay."

Edward Alstrom, sales manager, is administering a strict policy of sales through recognized jobbers only and Crotty's plans envision an aggressive sales and advertising policy to be undertaken during the 1950 heating season.

The company's complete line includes boilers, Water-Wall extension furnaces and Visco safety fueloil heaters.



Two pieces *of production equipment installed by Crotty Mfg. Co. The top picture shows a new shearer for cutting heavy boiler plate; the bottom is a view of a machine for rolling the plate and forming boiler tubes.*

Papers Discuss Refractory, Steel Combustion Chambers

TWO OF THE PAPERS delivered at the Engineering Session, held April 25 during the National Oil Heat Exposition in Philadelphia, afforded listeners an opportunity to hear about refractory and stainless steel combustion chambers from two authorities on the subject.

Space limitations made it necessary to omit reports of some papers from the May issue and, since these two are more or less companion pieces, it was decided to withhold publication until this issue. Carter P. Hamilton, Jr., district sales manager, A. P. Green Fire Brick Co., spoke on "Refractory Combustion Chambers for Small Capacity Domestic Oilburners"; Peter Payson, assistant director of research, Crucible Steel Co. of America, discussed "Stainless Steel Combustion Chambers."

Carter P. Hamilton, Jr.

Mr. Hamilton alluded briefly to the different types of oilburners—high and low pressure gun types, horizontal rotary cup, etc.—each having different flame characteristics and operating conditions, making it necessary for refractory combustion chamber manufacturers to provide designs that will last as long as possible, provide the maximum of satisfaction and the minimum of service calls or repairs.

In order to accomplish this and to provide combustion chambers which will permit complete combustion, minimum flame noise and excellent operating efficiencies, Mr. Hamilton stated, manufacturers "have found that three main categories of refractory materials are needed to answer the service conditions encountered. These categories are hard-burned kiln-fired fireclay brick chambers, insulating firebrick kiln-fired brick chambers and mix-and-pour refractory concretes or castables."

Continuing, he emphasized the necessity "to take certain basic principles into consideration, such as selecting proper materials for combustion chambers, designing combustion chambers suited to flame contour and radiation load to provide approximately 90 sq. ins. of floor area per gph. Most calculations are based on the oil burned being a normal hydrocarbon compound, consisting of approximately 15% hydrogen and 85% carbon which mixes with air compounds of approximately 21% oxygen and 79% nitrogen (the nitrogen passes off as inert gas). This hydrocarbon air mixture in burning consists mainly of H_2O and CO, and for each lb. of oilburner about one lb. of H_2O and three lbs. of CO are produced. Theoretically, approximately 14 lbs. of air (183 cu. ft.) is required for each lb. of oil (18,500 Btu) burner, using 30% excess air."

Mr. Hamilton next described the products of his company, which incorporate in their design the factors that fit certain types of refractory combustion chambers for different applications, and explained that "combustion chambers due to a varying design of burner equipment are required to withstand operating temperatures of from 1600 to 2400 degrees F. Therefore, in combustion chamber operations where temperatures exceed this normal operating range, it is necessary to give a great deal of consideration to the selection of a chamber high in refractoriness. In the more normal operating range, where insulating properties are the paramount factors, it is necessary to study the insulating properties thoroughly. And, where chambers are handled roughly and where simplicity of design is an essential element, one should consider the hard-burned firebrick chamber. It is generally found in the insulating firebrick chamber or the mix-and-pour refractory material that a faster fire is brought about, along with greater fuel savings and generally quieter operation.

"In many of the heating plants used today it is difficult to obtain pre-shaped chambers which will fit in inaccessible furnaces. This remains one of the most important uses for the mix-and-pour refractory castable materials."

Coincident with the discussion of combustion chambers, Mr. Hamilton pointed out, is the subject of oilburner baffle brick. Quite frequently, he stated, it is necessary to break up the stratification of gases for more efficient operation and this can be accomplished easily and effectively by installing a refractory baffle stool, which consists of a circular refractory disc supported by three refractory legs, which straddle the combustion chamber.

"The manufacturer of refractory combustion chambers," Mr. Hamilton concluded, "today has endeavored to provide a simple design in packaging which will protect the chambers during shipment and contain all the materials necessary for a complete installation. They have tried also to prepare and distribute literature and data to enable the installation men in the field to make the wisest selection of refractory materials and combustion chambers."

In his talk, Mr. Payson opened with a reference to the many types of stain-

(*Continued on page 142*)

Peter Payson

Mutual Life Building Employs Heated Sidewalk to Melt Snow

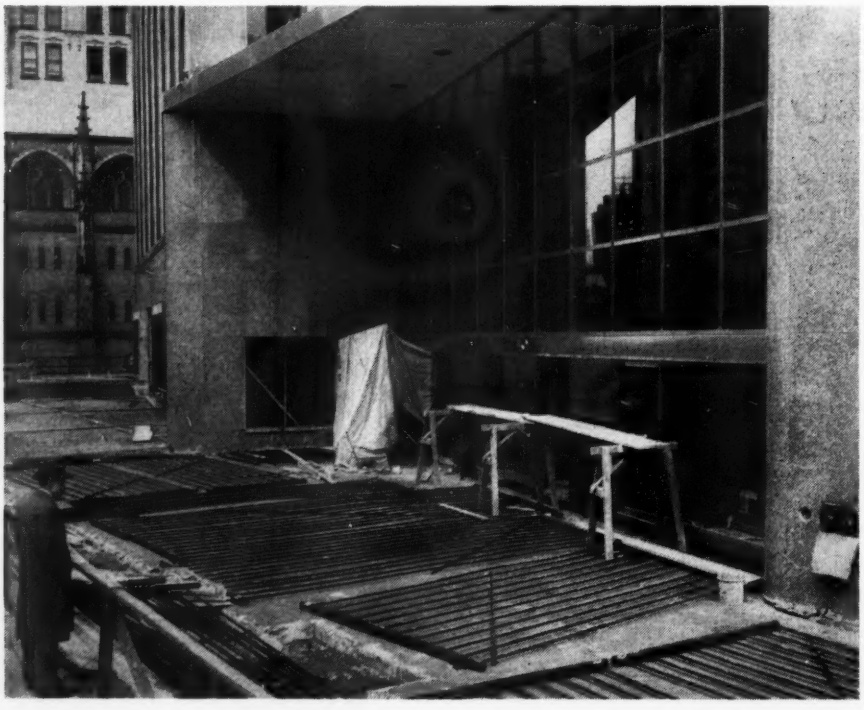
THE SIDEWALK AREA surrounding the new 25-story Mutual Life Building, Broadway at 55th St., New York City is honeycombed by 14,000 linear feet of piping for snow melting. The entire 12,000 sq. ft. sidewalk space is covered by the piping, ranging in size from ¾" to 3" diameters, imbedded in the sidewalk. Rayduct piping, a product of Bethlehem Steel Co., designed for radiant heating and snow melting, was specified for the installation.

The piping system, placed in the concrete approximately 4 to 5 ins. below the finished surface of the sidewalk, is of all-welded construction, requiring more than 2,000 welded joints, tested to 300 lbs. psi before the concrete was poured.

A system of distribution piping is located in the basement to connect the sidewalk coils with the heat exchanger and pumping equipment so as to permit circulation of a mixture of water and glycol antifreeze. The antifreeze to be used will be "Prestone" and the system will require in excess of 1,000 gallons so as to provide a 40% antifreeze—60% water mixture, suitable for operation to temperatures as low as minus 12 degrees F. This quantity of antifreeze would be sufficient for 500 average automobiles.

The water-antifreeze mixture will be heated to approximately 140 degrees F. in steam heat exchangers, using steam from the New York Steam Corporation. It is planned to start the operation of the system before snow actually falls so that the sidewalk may be kept clear of snow and slush.

The work is being installed by Wolff & Munier, Inc. under the direction and supervision of Shreve, Lamb & Harmon Associates, Architects; Jaros, Baum & Bolles, Consulting Engineers; and Turner Construction Company, Builders.



Installation *of snow melting system nears completion beneath 12,000 sq. ft. of sidewalk fronting the 25-story building erected by the Mutual Life Insurance Company of New York.*

U. S. Department of Labor Fueloil Prices (April)

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken April 15 (cents per gallon):

	Range	*No. 1*	*No. 2*	*No. 3*
Boston	13.77	13.60	11.00	..
Manchester	14.50	14.00	11.70	..
Portland, Me.	13.60	13.60	10.90	..
[3] Buffalo	14.54	..	12.22	12.22
[1] New York	..	..	11.00	..
Philadelphia	..	11.78	10.88	..
[1] Chicago	13.81	13.46	12.55	12.55
[4] Detroit	..	14.21	13.18	..
Milwaukee	..	14.00	13.10	13.00
[1] Kansas City	..	12.24	11.22	11.22
Minneapolis	14.17	13.93	12.88	12.93
[1] Baltimore	..	12.34	11.02	..
[1] Wash., D. C.	..	12.82	11.42	..
Jacksonville	..	13.83	12.08	..
Norfolk	..	12.60	11.00	11.00
Richmond	..	13.00	11.40	..
[2] Savannah	..	14.50	12.38	..
[5] New Orleans	..	13.82	12.36	12.36
Portland, Ore.	..	13.94	11.64	6.55
[6] San Francisco	..	13.77	11.44	6.48
[4] Seattle	..	14.77	12.65	6.74

[1] Prices include 2 percent tax.

[2] Inspection tax of one cent per gallon included on kerosene only.

[3] Prices include 1 percent tax.

[4] Prices include 3 percent tax.

[5] Prices include 3 percent tax on all fuels except gas; prices for kerosene and fuel-oil No. 1 also include one cent per gallon State health tax, and 1/32 of one cent per gallon State inspection tax.

[6] Prices include 3.5 percent tax on all fuels except gas.

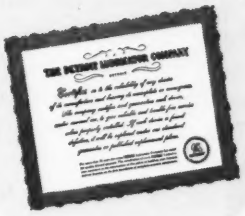
Walter Hervey Day Course On Oilheat Selling Added

BEGINNING JUNE 15, the Oil Heat Selling course, sponsored jointly by Oil-Heat Institute of America, Inc., and Walter Hervey Junior College, New York, N. Y., is being offered during the day hours, in addition to the original night classes.

The day sessions will comprise a two weeks intensified course covering the same subjects that are taught during the night course. The day short course was arranged for the benefit of dealers who expressed a preference to have their personnel devote two weeks in the day hours to the course rather than twenty-four weeks at night. Cost for the day course is $81, the same as for the night session, the price being described as all-inclusive. For out of town students, for whom the day course probably will be more preferable, living quarters are available in YMCA dormitories.

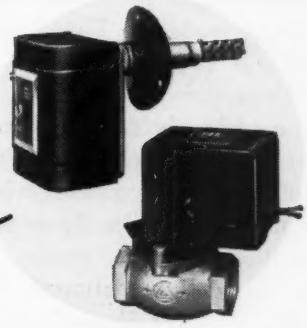
The Oil Heat Selling course is divided into two parts. The theory concentrates on developing sales personality, speech

demand DETROIT CERTIFIED CONTROLS



CERTIFIED—The *Timed Cycling* Room Thermostat, like all DETROIT controls, is certified by the manufacturer for reliability, performance and engineering excellence!

CONSUMER APPEAL—*Timed Cycling*—"The Thermostat With a Brain"—is a sales natural because it virtually eliminates the many heating discomforts your customers had accepted as inevitable—and *Timed Cycling* is available *at no extra cost*, in DETROIT thermostats for every type of heating system!



COMPLETE LINE—DETROIT offers a complete line of superior automatic heating controls from one convenient source—the only heating controls certified for successful operation!

NATIONALLY ADVERTISED—The tremendous power of The Saturday Evening Post and Better Homes and Gardens, reaching over 7,000,000 people, has carried news of *Timed Cycling* into the homes of your potential customers!

"TIMED CYCLING" and ONLY "TIMED CYCLING"

CONSUMER LITERATURE—DETROIT'S colorful, informative booklet on how *Timed Cycling* brings truly modern heat control, is being currently mailed to homeowners and homebuilders the country over!

Gives You All These Sales Advantages!

All of the advantages listed above—and more! For DETROIT'S broad line of finely engineered heating controls is backed by a nation-wide organization, trained to help you with your sales and service problems. It will pay you to demand DETROIT'S complete line of controls from your wholesaler because it's one sure way to profit through greater sales and customer satisfaction. Further information on *Timed Cycling* and the complete line of DETROIT certified controls is yours on request. Write today for Form No. 1545 and Bulletin No. 227.

DETROIT
LUBRICATOR COMPANY

5900 TRUMBULL AVE., DETROIT 8, MICHIGAN
Division of American Radiator & Standard Sanitary corporation
Canadian Representatives: RAILWAY & ENGINEERING SPECIALTIES, LTD.—Montreal, Toronto, Winnipeg

DETROIT

DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIPMENT • DETROIT EXPANSION VALVES AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

Serving home and industry AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWANEE BOILERS • ROSS HEATER • TONAWANDA IRON

and voice factors, sales psychology and presentations, methods of approach, fundamentals, motivations and competitors product analysis. The other phase covers practice, devoted to technical information, fuels, combustions and drafts, maintenance and cost problems, burner types, heat surveys, conversions, boilers, installations and controls.

◈

HARRY J. HUELLER, president, H. J. Hueller Mfg. Co., Inc., Brooklyn 25, N. Y., died at his home on June 1 when stricken suddenly with a heart attack. His company made the Twin Control oilburner and Twin Scot boiler-burner units. Originally Macrae, Inc., the Hueller company holds patents on a combustion head, described as the forerunner of present day combustion heads and the first to recognize the necessity of controlling air at the nozzle. The business is to be continued, with Anthony J. Sbare, of Sbare Automatic Heat, Bronx, N. Y., who worked with Mr. Hueller for a number of years, appointed to take care of the affairs of the corporation. Mr. Hueller is survived by his wife, Ann.

Indianapolis Homes Use Oil For 22% of Central Heating

OF THE 77,165 HOMES occupied by owner families in the Indianapolis, Ind. metropolitan area that have central heating, 22.2% or 17,141 employ oil, according to a survey released in April by the *Indianapolis Star* and *Indianapolis News*. Coal is used in 61.7% or 47,641 of the homes, coke in 9.3% or 7,137, gas in 6.7% or 5,185 and wood in .1% or 61 of the homes.

The survey conducted by the newspapers was based upon questionnaires sent to families selected at randon within census tracts, and covered a total of 2,500 of the 152,500 families who reside in the area. The sample obtained from the questionnaire returns then was projected to cover all families. The questionnaires were returned during the last three weeks in January and the survey published in April.

The following tabulations show the method used for home heating and the type of heating used for both owner and renter families:

Method of Home Heating

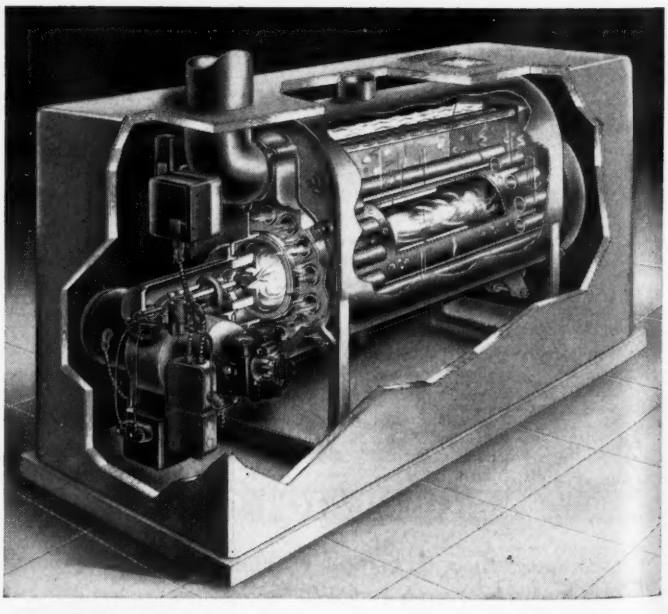
	Owner Families		*Renter Families*		*Total Families*	
	Percent	*Number*	*Percent*	*Number*	*Percent*	*Number*
Central furnace	76.9%	77,165	65.2%	34,038	72.9%	111,203
Room heater	19.7	19,703	28.3	14,762	22.6	34,465
Other	3.4	3,416	6.5	3,416	4.5	6,832
Total	100.0	100,284	100.0	52,216	100.0	152,500

Type of Home Heating

Hot Air	74.0%	74,237	43.2%	22,570	63.5%	96,807
Hot Water	3.6	3,599	5.0	2,623	4.1	6,222
Steam	1.9	1,891	18.4	9,577	7.5	11,468
City heat	0.3	305	3.0	1,586	1.2	1,891
Individual stoves ...	20.1	20,130	30.0	15,677	23.5	35,807
Other	0.1	122	0.4	183	0.2	305
Total	100.0	100,284	100.0	52,216	100.0	152,500

SELLS YOU TO YOUR CUSTOMERS

Crusade-a-therm



More eye appeal, more sales stimulating features

Here, in a space only 60 inches long, 21 inches wide, and 35 inches high, is a "package" (for the average size home) of remarkable heating efficiency. It's completely automatic, completely reliable source of hot water, too. The Bethlehem Crusade-a-therm combines two world-famous products, the Bethlehem Boiler and the Crusader Burner, each tops in its field. It's a world-beater for penny-pinching and dependability. And it's the only package unit with the C-liminator, the delayed relay switch that completely eliminates smoke on start. Dealers everywhere acclaim it THE BIGGEST AUTOMATIC HEATING VALUE IN AMERICA! The Crusade-a-therm is manufactured by one of the oldest and soundest concerns in the country, the Bethlehem Foundry & Machine Company—a company that is close to 120 years old!

Crusade-a-therm

is a "Natural" for Sales and Profits!

A few exclusive Bethlehem Crusade-a-therm territory Franchises are still available. Wire or write immediately for full information.

BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

WHAT DEALERS WHO "KNOW" ARE SAYING . . .

. . . ABOUT SILENT GLOW

Priced right to meet today's price-conscious market.

Helped boost sales in '49 . . . doing it again in '50.

The easiest burner to service . . . and they stay serviced.

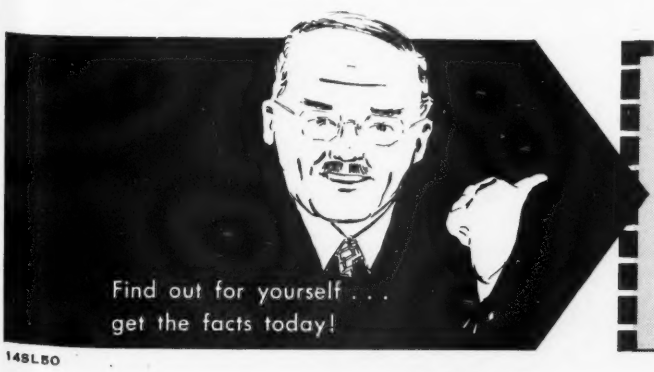
A quality burner you can't beat for any price.

It's easier to buy!

Customers like your "Certified Installation" guarantee.

A sure bet for bigger sales.

National advertising makes it easier to sell.



THE SILENT GLOW OIL BURNER CORP.

850 Windsor St., Hartford 5, Conn., 1500 So. Western Ave., Chicago 8, Ill.

Send us the complete facts about Silent Glow Oil Burners including prices and your money-back guarantee.

Name_____

Company_____

Street_____

City_____ State_____

14SL50

Heavy Oil

(*Continued from page 37*)

cluding residual oils, for some years to come. In Venezuela and the Middle East, there will be continuing pressure, political and economic, for increasing markets and dollar exchange which would mean increased exports to the U. S. Eastern Seaboard. There are, however, numerous U. S. domestic interests, including among others, the independent petroleum producers, the coal industry, the railroad industry and labor, which are aggressively averse to the current level of imports and would certainly resist strongly further increases. Indications are that the principal oil importers are fully cognizant of the advisability of limiting imports, as restrictive measures in the form of direct limitation or greatly increased import duties have been threatened. With these factors at work, imports are not likely to increase materially.

Crude Price a Factor

The price of crude oil in the U. S. and worldwide will, of course, bear upon the question of residual oil prices. While it would be unwise to predict what change in the crude price structure will occur, it may be observed that with world surpluses of crude production and refinery capacity and the likelihood of a highly competitive situation, the U. S. crude oil price will be vulnerable for the ensuing several years at least, unless protected by tariff or other import restrictions.

In view of these various factors it is not considered probable that residual oil prices, particularly on the east and west coasts, will rise materially, except possibly for relatively short periods when supply and demand may be out of balance. Somewhat lower prices could prevail, if a reduction in crude oil prices should eventuate.

It would definitely appear to be in the interest of the oil industry, as well as of its principal residual oil consumers, to avoid as far as possible marked fluctuations in residual oil prices. Consumers generally prefer price stability and are averse to making frequent changes in fuel. Further conversions from coal to oil are more likely to occur if consumers had reasonable assurance that prices will not fluctuate widely and thus affect their manufacturing cost.

The possible off-season use of natural gas for industrial purposes at dump prices would of course occur more readily should residual oil prices rise substantially above present levels. With only a slight difference in price the incentive for switching from one fuel to another seasonally would not encourage large scale seasonal conversions. To meet the challenge of low industrial gas prices during the summer, the oil industry may in fact wish to consider some reduction in residual prices during this period. A possibly indirect result of large scale summer use of natural gas would be the encouragement of additional natural gas pipe lines to serve a larger share of the home heating load during the winter period. This would, of course, adversely affect the distillate oil demand to the detriment of the petroleum companies.

It is suggested that the oil industry would be well advised to attempt to maintain residual oil prices within a relatively narrow range, say 10% above or below current prices, in the principal markets. With such prices, it is likely that residual demand would be reasonably well maintained (except in the far west where greatly expanded dieselization and large inroads of gas will prevail) particularly if prices were adjusted seasonally as required to meet gas competition. It is believed that within this price range residual fuel would assume its proper place in the fuel economy, allowing coal, gas and distillates to share equitably in supplying the energy requirements of the nation.

Exports To Mexico And Venezuela Level Off

EXPORTS of domestic and industrial conversion oilburners to Mexico and Venezuela have leveled off after an increase following World War II, it is reported in the publication, "World Trade in Commodities," Vol. VIII, Part 15, No. 7, March 1950, published by the U. S. Department of Commerce, Office of International Trade.

In Mexico central heating facilities ordinarily are not required because of the mild climate, but there is some demand for vaporizing pot type burners for use in water heaters and cook stoves. In the high plateau regions oilfired space heaters are used, but production is small. Imports, principally from the United States, supply the needs for industrial oilburners. It is believed that the current demand for United States burners and parts will be maintained.

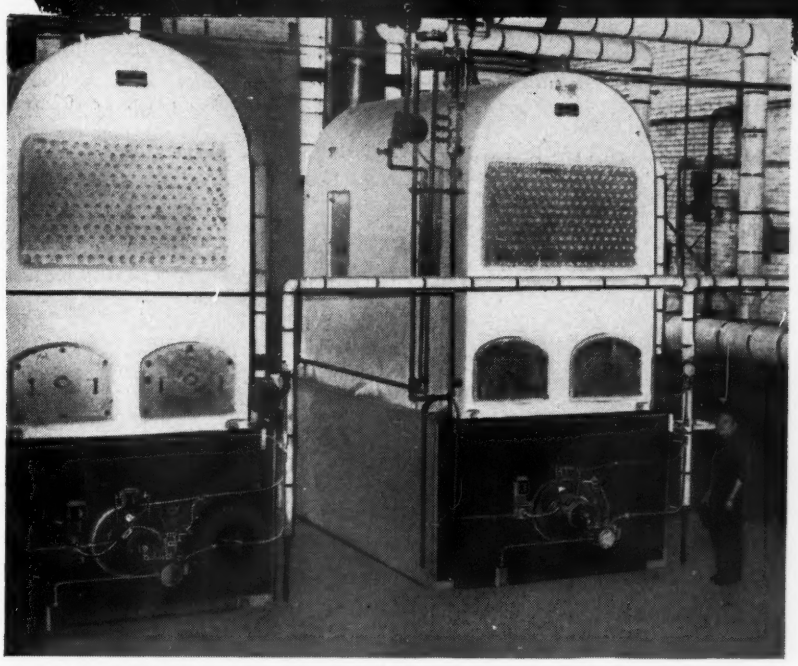
The tropical climate in Venezuela and limitations in its industrial development have curtailed the use of oilburning equipment. There is no domestic production, and the United States has supplied oilburners and parts almost exclusively for the past ten years, and since 1945 in a substantially increased amount. Use of the industrial type has predominated with indications that it will increase further since the Venezuelan Government is lending every assistance to the promotion of its manufacturing and industrial facilities. Ultimately this expansion should increase the sale of industrial oilburners.

Reproduced below is a table showing exports from the United States of domestic and industrial conversion oilburners, oilfired boilers and parts to both countries for the period from 1945 to 1949.

Year	*Domestic Conversion Oilburners and Oilfired Boilers* Quantity	Value	*Industrial Conversion Oilburners and Oilfired Boilers* Quantity	Value	*Domestic and Industrial Oilburner Parts (Value)*	*Total Value*
			MEXICO			
1945 ..	463	$43,382	502	$190,803	$24,779	$258,964
1946 ..	323	37,632	881	245,992	44,877	328,501
1947 ..	1,077	119,579	1,531	275,886	47,373	442,838
1948 ..	452	77,014	579	219,872	67,241	364,127
1949* .	88	36,987	866	203,915	36,978	217,880
			VENEZUELA			
1945 ..	126	8,777	270	60,792	9,483	79,052
1946 ..	103	10,007	263	57,734	21,015	88,756
1947 ..	256	27,804	336	114,892	13,298	155,994
1948 ..	195	32,177	151	84,203	36,723	153,103
1949* .	63	29,824	100	77,607	19,126	126,557

*First nine months of 1949 only.
(Source: Foreign Commerce and Navigation of the United States)

Ace UNIFLOW OIL BURNERS
...THE PERFECT ANSWER
TO BURNING No. 5, 6 AND BUNKER "C" OILS

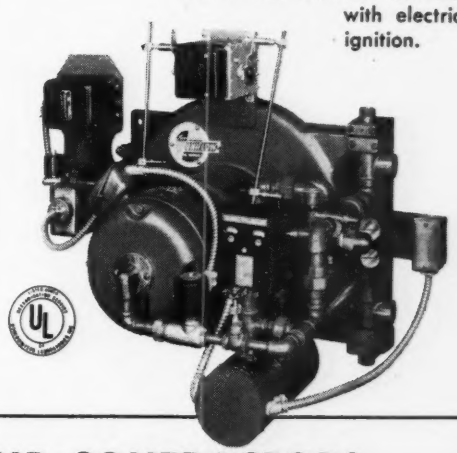


ACE UNIFLOW Oil Burners installed at Studios, Inc., Waltham, Mass.
Two International 250 b.h.p. Boilers
C. T. Main, Inc., Engineers; Seltzer & Co., Inc., Contractors

HEATING COST CUT NEARLY 50%!

Mitchell J. Marcus, president of Studios, Inc., furniture manufacturers, heartily testifies to the economy of ACE UNIFLOW Oil Burners. In a letter to Seltzer & Co., Inc., Ace distributor in Boston, Mr. Marcus says, *"With our new ACE UNIFLOW Oil Burners, our heating costs have been reduced 46.5%. With savings such as these, our new system will pay for itself in a very short time."*

Type DREH fully-automatic, direct drive Ace Uniflow Oil Burner with electric-gas ignition.



TEN SIZES GIVE FOLLOWING RANGE OF CAPACITIES

	Gallons Per Hour	Boiler H. P.	Square Feet Steam Rad.
Minimum	4	12	1,600
Maximum	165	500	66,000

Ace UNIFLOW OIL BURNERS ®

"Custom Engineered for Discriminating Buyers"

DEALERS AND CONTRACTORS . . .

Join the profit parade by handling ACE UNIFLOW Oil Burners! It is easy to sell and profit on installations when you have testimonial letters like the one above—only one of the many that Max Seltzer has received from satisfied customers during the many years he has handled ACE UNIFLOW Oil Burners.

WRITE TODAY FOR FULL DETAILS!

ACE ENGINEERING COMPANY
1435 WEST 15th STREET • CHICAGO 8, ILLINOIS

New England Burner Show

THE 1950 BIENNIAL Exposition of Oil Heat, sponsored by Oil Heat Institute of New England, at the Hotel Statler, Boston, June 19 to 22, was pronounced a success by the one hundred exhibitors who displayed their products. The affair got off to a rather slow start on its first day, but interest and attendance picked up noticeably and steadily until the closing hours on June 22.

Better than 40% of the booths displayed oilburners or oilfired furnace and boiler-burner units, the balance of the exhibits featuring components, accessory equipment, fueloils and related items. Attendance figures exceeded 3,500 and since it was necessary to display a badge, obtained by filling out a registration card, in order to enter either of the exhibit rooms, this figure presents a pretty accurate count of the number of industry people who came to see the displays.

Acting on a suggestion that was made after the 1948 Exposition, this year the Institute provided large, celluloid badges for exhibitors and plastic envelope badges for other visitors, color coded to indicate the segment of the industry to which they belonged. Blue badges were for dealers, distributors, manufacturers or similar classifications within the oilburner industry, green badges were issued to architects or engineers and red badges to miscellaneous classifications.

Harry J. Blake, president of the Boston Chamber of Commerce officially opened the Exposition at 1:00 P.M. on June 19. The trade show was the only event planned for the 19th and 20th, with the exposition opened for nine hours each day. On Wednesday, June 21, a ladies' day program was arranged. The exposition closed at 6:00 P.M. on this day to permit attendance at the annual banquet, held at the Hotel Bradford.

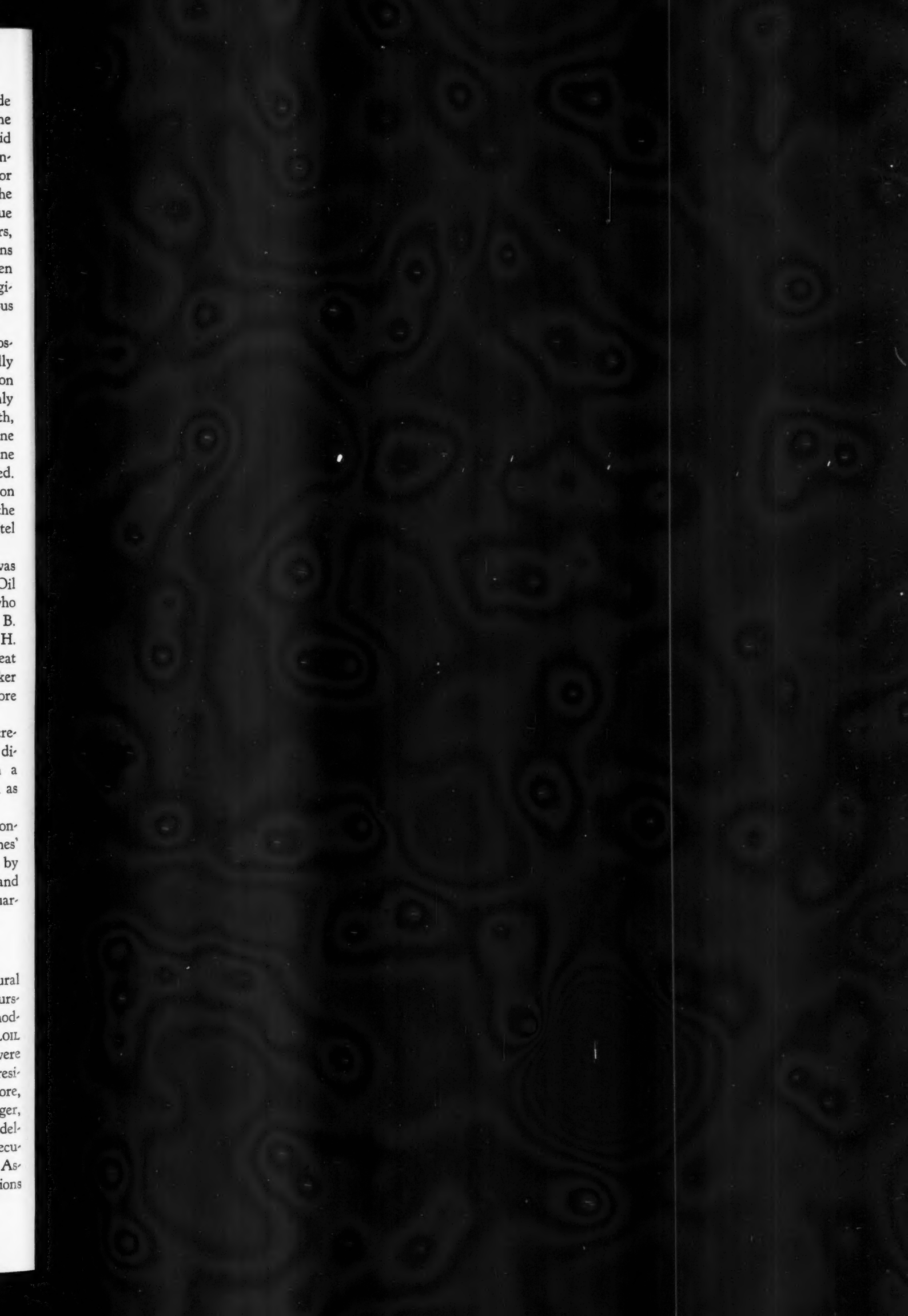
The toastmaster at the banquet was William F. Briggs, past president, Oil Heat Institute of New England, who introduced the Honorable John B. Hynes, Boston's Mayor and Ralph H. L. Becker, managing director, Oil-Heat Institute of America. Principal speaker was James Gheen, who discussed "More Sense and Less Pretense."

Fred N. Beckwith, executive secretary of the Institute and exposition director, presented Mr. Briggs with a clock, a memento of his recent term as Institute president.

Entertainment at the banquet consisted of the music of Gene Jones' orchestra and a program presented by the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America, Inc.

Forum on Natural Gas

A round table forum on the natural gas invasion was conducted on Thursday, June 22, in the morning, moderated by Robert Gray, editor, FUELOIL & OIL HEAT. Panel members were Charles R. Collins, executive vice president, Gerotor May Corp., Baltimore, Md.; K. E. DeRosay, national manager, Fuel Oil Dept., Sun Oil Co., Philadelphia and Harold M. Mottram, executive secretary, Wisconsin Oil Heat Association, Milwaukee. Condensations



round or square, rectangular or pear—

PANELOX has it!

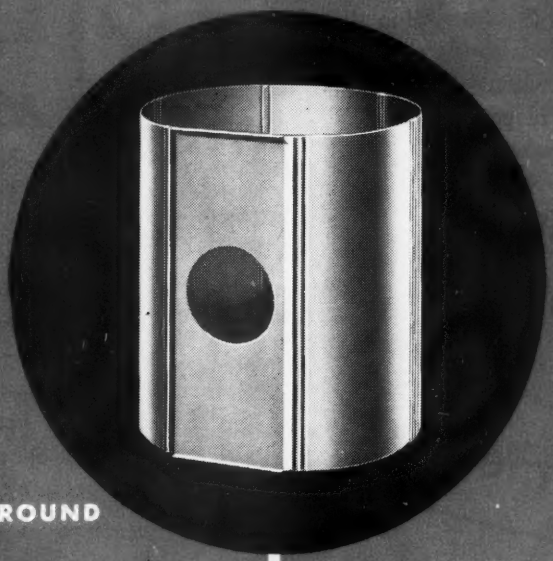
YOUR MOST COMPLETE LINE OF COMBUSTION CHAMBERS FOR DOMESTIC USE!

No matter *what* your requirements in domestic combustion chambers, there's a PANELOX Heat-resistant Stainless Steel Chamber to fit the job! Round or square, rectangular or pear-shaped—32 standard sizes and shapes—*plus* many special designs for original equipment manufacturers.

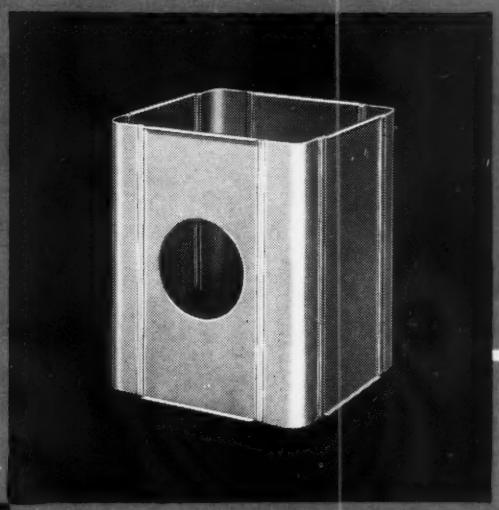
Saves fuel (up to 25%) . . . provides cleaner, quieter heat . . . eliminates over-ride for more uniform comfort. Light in weight . . . no breakage . . . easiest to install.

No other chamber offers you—or your customers—so much. Write, wire or phone for complete list of sizes and prices.

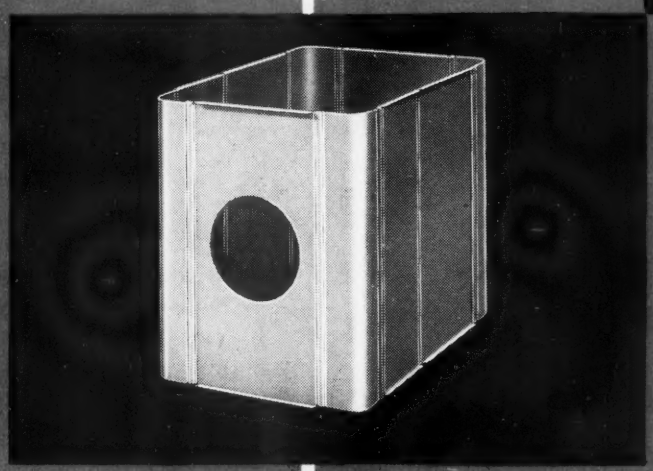
STEFCO STEEL COMPANY
Heating Equipment Div., Michigan City, Ind.



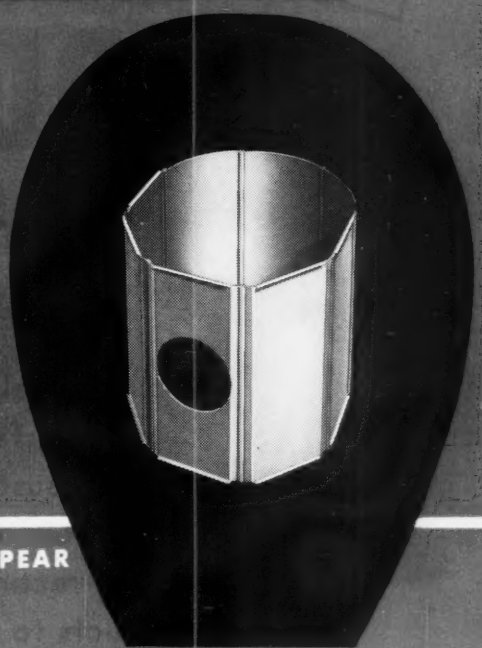
ROUND



SQUARE



RECTANGULAR



PEAR

- Time-proved heat-resisting stainless steel
- Interlocking panels—no tools required
- No backfill or cement needed
- No breakage in shipment or handling
- Installed in minutes—heats up in seconds—stands up for years

Easy to install—interlocking panels slide together easily.

Four thicknesses of metal at seams—provides extra strength, extra rigidity.

Panels made in several widths for easy fitting to a wide range of chamber dimensions.

PANELOX® HEAT-RESISTANT STAINLESS STEEL COMBUSTION CHAMBERS

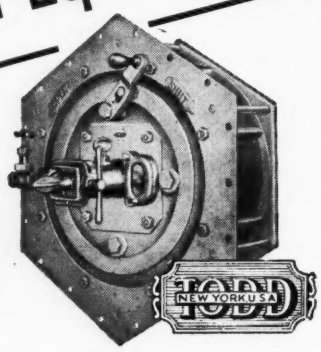
of their papers appear in this issue.

Immediately following the forum was an industry luncheon, at which Joseph Olney, Jr., 1st vice president, Oil Heat Institute of New England was toastmaster. Dr. Hugh Shields was the speaker.

The exposition opened after the luncheon, was closed finally at 10 P.M.

With business sessions held to a minimum, exhibitors were afforded ample opportunity to vie for the interest of the attending dealer. The banquet, forum and luncheon all drew good crowds and the exhibit rooms were comfortably filled nearly all the time. Manufacturers and dealers both reported excellent present business and prospects for the rest of the year, some reporting sales nearly doubling last year. If this be the normally slow season, they were wondering, what will the normally busy season be like? And, creeping into their thoughts were some misgivings about possible equipment shortages that might plague them. All in all, though, the consensus was "We're half way through what is going to be a good sales year, and we're going out every day and trying to make it even better."

35 YEARS of engineering progress have made TODD products the world standard for Combustion Equipment



TODD BURNERS

...OIL and GAS

• For commercial and industrial application. Many standard and modified types of combustion equipment available. Todd engineers will cooperate with you in recommending and fitting Todd products to specific needs.

Consult us on your problems

COMBUSTION EQUIPMENT DIVISION
TODD SHIPYARDS CORPORATION

81-16 45th Ave., Elmhurst, Queens, N. Y. ILlinois 7-5500

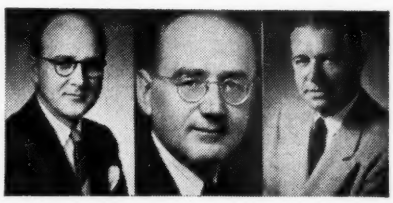
Blazer Becomes President of Frontier, Appoints Officers

WILLIAM H. BENNETT, president, Frontier Oil Corp., Buffalo, an Ashland Oil & Refining Co. affiliate, has become chairman of the executive committee and has been succeeded to the presidency of Frontier by Rexford S. Blazer, president of Allied Oil Co., Inc., Cleveland, another Ashland subsidiary. Mr. Blazer is continuing as Allied president, a position he has held since 1948.

Blazer

Mr. Blazer also announced the following four new officers appointed at Frontier:

Frederick F. Ott has become vice-president in charge of operations and purchasing, an appointment which



Ott Babor Maxwell

climaxes his 12 years' association with Frontier, responsible for engineering, construction and transportation projects.

Rud J. Babor is now vice-president in charge of transportation and supplies. He joined Frontier in 1948 and before that had been with Richfield Oil Corp. Mr. Babor will continue to maintain headquarters in New York and Buffalo.

Clayton G. Maxwell has been named vice-president in charge of retail sales, including furnace oil and oilburner sales. He has been with Frontier since 1940 as sales manager.

At the same time, Mr. Blazer announced the appointment of Charles S. Price as treasurer and assistant secretary.

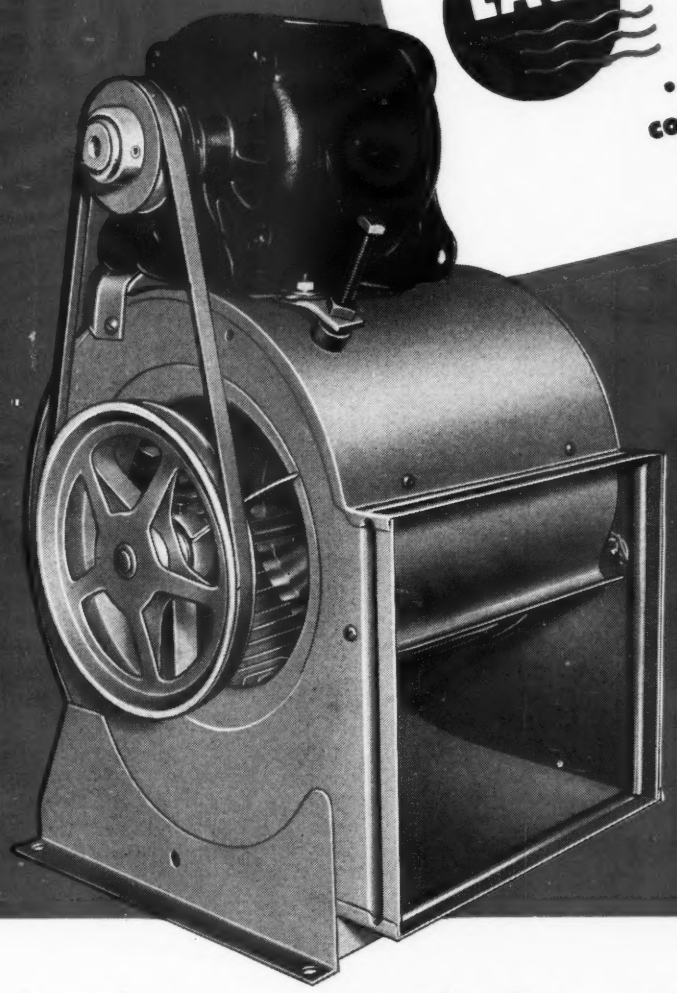
Frontier owns and operates a 10,000 barrel refinery in Buffalo with M. C. Sumpter as superintendent. It is a large marketer of domestic and industrial fuel-oils in the Buffalo area and since last Spring has been affiliated with Ashland Oil & Refining Co.

You want the best... here it is through the years... conceded to be America's most outstanding

LAU Blower assembly unit

Series "A"

... performance proved ... in continuous use and reorders by leaders in the furnace field



New Lau Series "A" blower assemblies are the last word in product development . . . preferred and specified by leading furnace manufacturers . . . proved for performance and long life through the years. Why buy misfits? Why try to build your own? Lau mass production means precision built equipment at lower prices!

9 outstanding features

1. 3-Point Suspension Bearing Bracket
2. Self-aligning Bearing Assembly
3. Heavy gauge, steel housing base
4. 1-piece Motor Mounting—for any angle
5. Reinforced discharge outlet
6. Exclusive LAUSTEEL pulley wheel
7. Positive alignment, wheel to Venturi
8. Redesigned scroll—scientifically dimensioned
9. Center suspension spun-assembled wheel

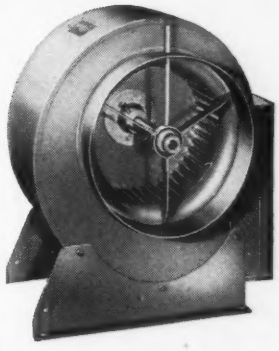
... write for full information

for performance, economy and quality

Single inlet blowers

Series "SI" is one of the most compact single inlet blower assemblies ever introduced. Five sizes (7"-9"-10"-12"-15") have the same outstanding quality of construction and performance. Complete range of motor mounting from top to rear. All standard discharge positions. "Round-the-world" base assembly. Angle of discharge can be changed in the field for any direction of discharge.

- Ventilating Industrial Machinery
- Ventilating Kitchens
- Air Conditioning and Cooling Systems
- Ventilating Dip Tanks and Baths
- Ventilating Welding Machines
- Removing Heat from Laundries
- All Type of Air Movement Within the Capacity of the Fan



World's Largest Manufacturer of Warm Air Furnace Blowers

NATIONAL WARM AIR HEATING AND AIR CONDITIONING ASSOCIATION — INDOOR COMFORT

THE LAU BLOWER COMPANY

Dayton 7, Ohio

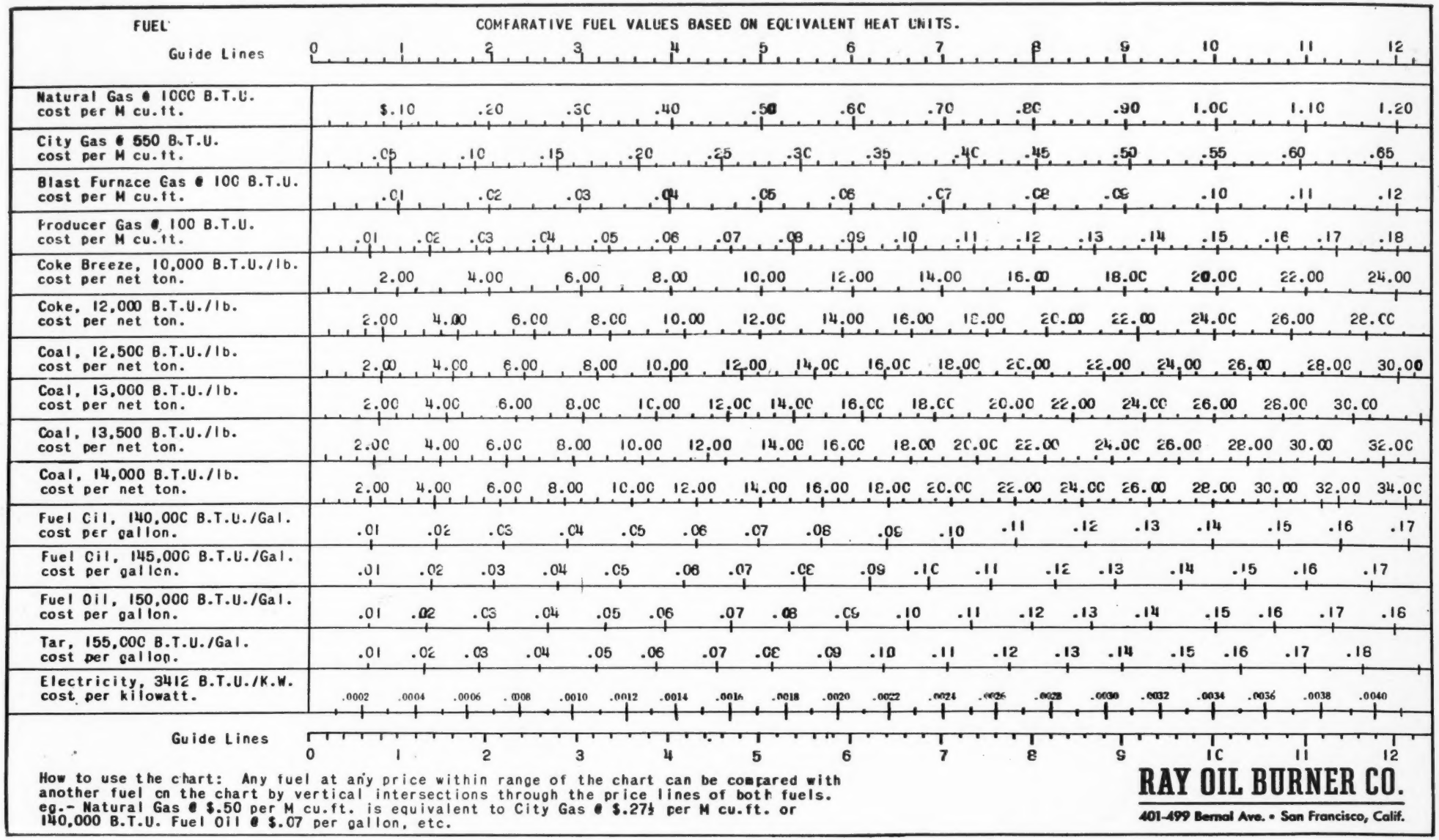
WRITE DEPT. "D" FOR FULL INFORMATION

Comparative Fuel Values

Fuel cost comparison sheet *furnished by Ray Oil Burner Co., San Francisco 12, Calif. The chart, which shows comparative fuel values based on equivalent heat units, was developed by A. H. Reed, president of Ray Heat and Power Co., Cincinnati, Ohio.*

The guide lines on the top and bottom of the chart permit the use of a straight edge, or similar device, to be laid across the chart, intersecting the price of any selected fuel. Along the same line then can be read the comparative price of any of the fifteen fuels listed.

The figures taken from the chart do not take into consideration efficiency of operation or other factors, but are perfectly accurate to illustrate the cost of different fuels based on equivalent heat units.



How to use the chart: Any fuel at any price within range of the chart can be compared with another fuel on the chart by vertical intersections through the price lines of both fuels. eg.- Natural Gas @ $.50 per M cu.ft. is equivalent to City Gas @ $.27½ per M cu.ft. or 140,000 B.T.U. Fuel Oil @ $.07 per gallon, etc.

RAY OIL BURNER CO.

401-499 Bernal Ave. • San Francisco, Calif.

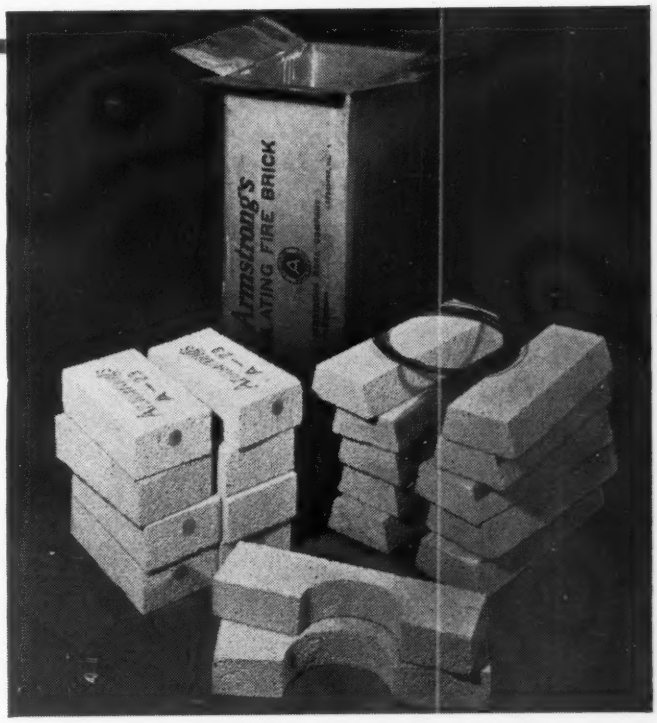
ARMSTRONG'S COMBUSTION CHAMBERS ARE EASY TO INSTALL

Your mechanics can install Armstrong's Combustion Chambers in a hurry. Each chamber is packaged as a complete unit, ready to assemble. The carton is specially designed to prevent breakage, so all pieces reach the job intact.

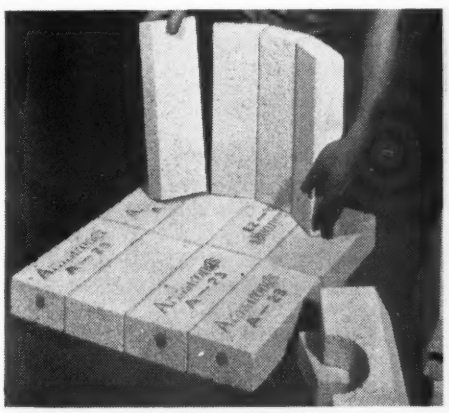
The factory-fabricated pieces are cut even and true. They stand squarely on the base and fit snugly together. They're light in weight, easy to handle in cramped space. The porous insulating tile from which these chambers are made is remarkably strong. It won't crack easily or crumble in handling, yet can be readily notched and grooved to fit around lugs and castings.

Armstrong's Combustion Chambers are made in three types for all temperatures to 2600° F. All come in three sizes for burners ranging in capacity from one to two gallons per hour. Armstrong also makes a complete line of six standard insulating firebrick for temperatures up to 2800°. Chambers for furnaces requiring special fabrication can be quickly built of these brick.

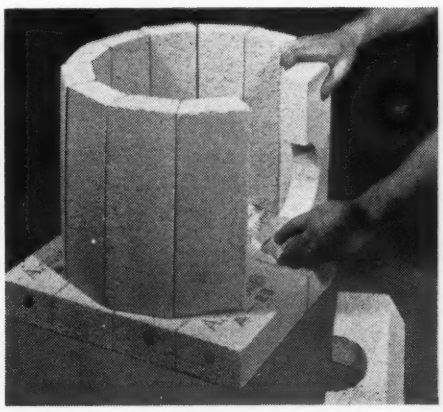
Armstrong's Combustion Chambers and Insulating Fire Brick are available through Armstrong's distributors and oil-burner wholesalers. For information, call your supplier or write to Armstrong Cork Company, 1407 Mulberry Street, Lancaster, Penna.



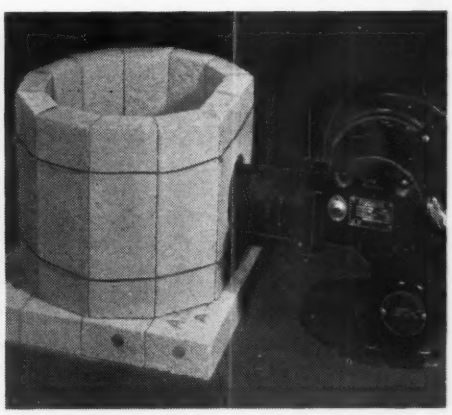
1. All necessary materials—factory-cut pieces, wires, and cement are shipped in one carton. There are no cumbersome extras to carry along on the job.



2. Insulating fire brick base protects concrete floor from cracking. Sidewall pieces set solidly on it.



3. Pieces forming the burner port go in place last. They can easily be shaped to fit accurately any size firing tube.



4. Wires hold bricks tight. Add fill-type insulation between chamber and furnace shell and the job is complete.

ARMSTRONG'S COMBUSTION CHAMBERS

Made of Armstrong's Insulating Fire Brick

Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Groups' activities to reach the editor by the 18th.

Washington, D. C., Group Sponsors Mass Meeting

A MASS MEETING, sponsored by the Oil-Heat Institute of Greater Washington, Washington 1, D. C., was organized to impart to all classes of employees the desire and necessity for performing a good public relations job for the industry. The meeting, held late in June, featured only one speaker, John S. Sherwood, Sherwood Bros., Baltimore, Md., who discussed the "Facts on Fueloil and Gas Competition." Patterned after a similar gathering held last March in Baltimore, the theme of the meeting was to explain to the employees the advantage of oil heat and to give them the story on comparative fuel costs in the Washington area.

The dealers underwrote the expense of the meeting by a fixed charge for each employee who attended and, to stimulate attendance, an orchestra provided music and cash door prizes were awarded. The drawings for the prizes were based on numbered stubs from each ticket. In addition, a $50 cash prize was given for the best letter submitted within a week after the meeting on the subject, "What I intend to do to sell my friends on the safety and low cost of oil heat."

NYOHA Endorses Atlantic Coast Promotion Program

THE PROMOTION PROGRAM of the Fuel Oil Foundation, sponsored by Atlantic Coast Oil Conference, New York 17, N. Y., was approved unanimously by the New York Oil Heating Association, Inc., Long Island City 1, N. Y., at a recent meeting. Philip H. Schepp, executive secretary of NYOHA, remarked, "Our association . . . not only approves the Foundation's program but will do everything in its power to give it active and wholehearted support."

Harry B. Hilts, secretary of the Conference, presented the general outline of the promotion plan to the membership and was followed by C. F. Rogers, field director of the Foundation, who explained how local associations will function within the Foundation. Kirk B. Shivell, head of the advertising agency retained to handle the program's advertising, described plans for the metropolitan area.

At the next joint meeting of NYOHA and the Foundation, a detailed advertising and promotion program will be presented, tailored to fit the needs of the New York metropolitan area and which will be put into effect immediately.

Wisconsin Dealers Hold Last Pre-Summer Meeting

THE JUNE 29 meeting, held in the Colonial Room of the Wisconsin Hotel by the Wisconsin Oil-Heat Association, Inc., Milwaukee 2, Wis., was the last regular meeting of the group until September. The gathering heard reports from the Advertising and Legislative Committees, who discussed some of their

(*Continued on page 86*)

A filter for every Oil Burner Service

SPARKLER FUEL OIL FILTER

Model OB-2 actual size

Approved by Underwriters' Laboratories

THREE SIZES OB-2 OB-4 OB-8

You get

- ★ **A nice profit item**
- ★ **Easily stocked refill element. One type filter disc used on all filter sizes.**
- ★ **Reduction in service calls due to clogged nozzle screens.**
- ★ **Customer satisfaction — no burner trouble when filling of tanks stirs up sediment.**

The positive seal prevents by-passing of unfiltered oil, this eliminates trouble due to clogged nozzle screens. All oil that reaches the burner is filtered through the rayon element that removes minute particles down to .002 and any water in the oil. This is particularly important with small size burners used in the average home.

Three sizes—OB-2 for average home size burners. OB-4 for larger burners or unusually dirty tanks. OB-8 has four times the capacity of OB-2.

Order from your jobber

SPARKLER MANUFACTURING CO., Mundelein, Ill.

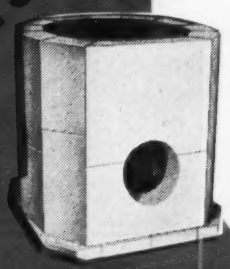
Makers of industrial filters for the Food, Chemical, and Oil Processing industries for over a quarter of a century.

Member, Oil Heat Institute of America

MAKE MONEY ON EVERY JOB

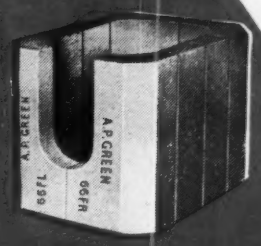
with these

A. P. GREEN Combustion Chambers



STANDARD IFB Combustion Chamber

QUICK—EASY TO INSTALL



STREAMLINED Combustion Chamber

ASSURE EFFICIENT OPERATION

PERFECTO Combustion Chamber

COST NO MORE THAN ORDINARY CHAMBERS

OIL BURNER Baffle Brick

SIZES TO MEET EVERY OIL BURNER REQUIREMENT

HIGH TEMPERATURE Insulations

STANDARD IFB Combustion Chamber

Requires minimum installation time. Front tile is in two pieces with burner opening already cut. Packed in special container that guards against breakage in shipment. Everything you need is in the carton, including a 5-lb. can of 'SAIRSET high temperature mortar.

STREAMLINED Combustion Chamber

Conforms to the natural shape of the flame and eliminates "dead corners." Provides more quiet operation. The ease of installation makes the installed cost of a STREAMLINED Chamber no more than that of an ordinary type of chamber. 5-lb. can of 'SAIRSET included in specially designed protective package.

PERFECTO Combustion Chamber

A practical, economical solution to many oil conversion problems. Installation is simple. For both round and elongated chambers, four basic tile shapes are used to form chamber sizes to fit nearly every type of domestic furnace or boiler.

OIL BURNER Baffle Brick

The baffle is installed in such a manner that it rests on the combustion chamber and directs furnace gases to all heating surfaces. Results in more economical and efficient performance by reducing the waste heat up the stack.

HIGH TEMPERATURE Insulations

These A. P. GREEN High Temperature insulations help insure the efficiency of the oil burner installation.

A. P. GREEN FIRE BRICK CO.
Mexico, Missouri, U. S. A.
In Canada:
A. P. GREEN FIRE BRICK COMPANY, Ltd.
Toronto 15, Ontario

Order from Your A. P. GREEN Distributor; he's listed in the yellow pages of your telephone directory, or write direct

A. P. Green **REFRACTORY PRODUCTS**

OUR 40TH YEAR SERVING THE WORLD'S INDUSTRIES

DISTRIBUTORS IN THE PRINCIPAL CITIES OF THE WORLD

(*Continued from page 82*)

plans for the Fall. The annual golf outing, it was announced, will be held at Merrill Hills Country Club on July 28.

On July 11 the Board of Directors of Oil-Heat Institute of America met in Chicago and on July 12 they continued their deliberations in Milwaukee. A luncheon rally was held on that day, to which all industry members were invited. Outstanding industry speakers discussed the "Oil vs Gas" situation.

Re-elect Officers at SBI Annual Meeting

ALL OFFICERS were re-elected at the annual meeting of the Steel Boiler Institute, Philadelphia, Pa., held June 12 and 13 at Absecon, N. J. R. A. Locke was named president and Arthur P. Weiss, vice president, for another term. Three directors' terms expired. H. H. Peek, Jr., one of them, was re-elected and John Dillon of Titusville, Pa., and Ray Johnston, Jr., Ferrysburg, Mich., were named to replace the other two. John C. Trefts, Jr. was designated chairman of the executive committee, a new post. Paul K. Addams and Elbert M. Palmer, both directors, complete the membership of the committee.

The Engineering Committee again is headed by L. N. Hunter as chairman and the Sales and Distribution Committee by P. K. Addams.

Rochester OHI Holds Open Meeting; Hears Talk by Casler

AN OPEN MEETING was held by Oil Heat Institute of Rochester, Inc., Rochester 4, N. Y., on June 29, described as an opportunity to find out how automatic oil heat eliminates "first cost" dangers. Refreshments were served after the meeting and each dealer to whom notices were sent was urged to bring along his service men, truck drivers or other employees.

Lon Casler, public relations counsel, Oil-Heat Institute of America, Inc., was principal speaker. His subject, developed to illustrate the status of oilheating, based on national developments and their import in the Rochester area, was entitled "Whose slip is showing now?"

Schedule District Meeting For Indiana Sheet Metal Men

THE SHEET METAL and Warm Air Heating Contractors Association of Indiana, Inc., Terre Haute, Ind., have scheduled another district meeting for the evening of July 14, at the Elks Club Rooms, Seymour, Ind. Described by Frank E. Anderson, secretary, as planned to give southern Indiana contractors the opportunity to attend a meeting in their area, the meeting is intended also to acquaint them with the activities of the State group.

All heating, oilburner and sheet metal contractors and suppliers were invited to attend the meeting, whose program consisted of an address of current interest, embellished with informative business reports. A period of entertainment and refreshments followed.

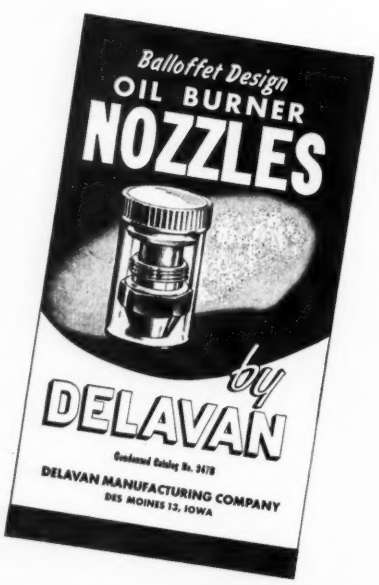
The board of directors of the State association met during the afternoon.

New England OHI Assists with New Hampshire Oilburner Rules

CLIMAXING more than a year of effort, Oil Heat Institute of New England, Boston 15, Mass., reveals that the New

NEW Condensed
CATALOG No. 347B
DELAVAN
Nozzles and Accessories

A new pocket size miniature catalog that lists Delavan's new low prices, new items and the latest specifications. It's yours for the asking.



WRITE FOR CONDENSED CATALOG 347B

DELAVAN
MANUFACTURING CO.
3009 SIXTH AVE., DES MOINES 13, IOWA

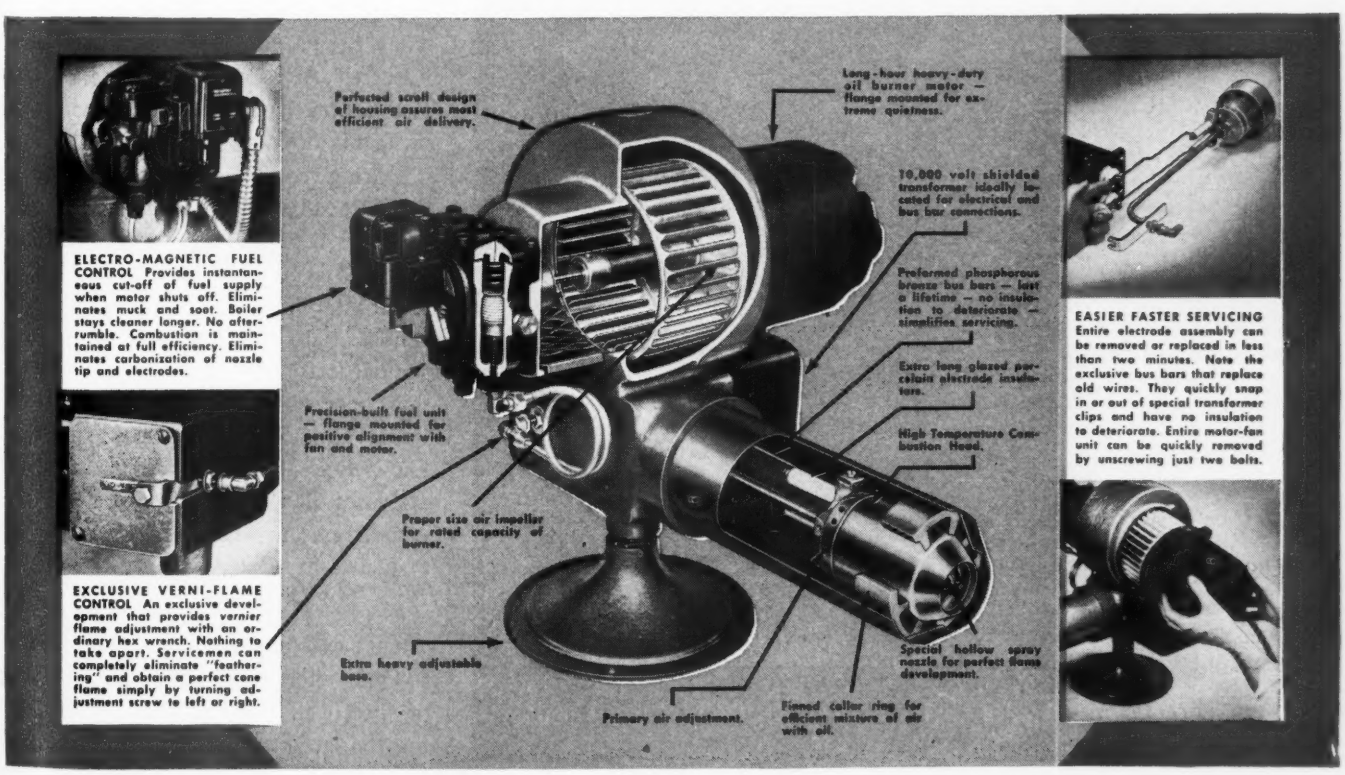
OHI

This is it

Model 400 S is by far the finest oil burner ever to bear the highly regarded U. S. name.

It has every desirable feature that an ultra-modern oil burner should have — including a High Temperature Combustion Head plus Electro-magnetic Fuel Control. Take a good look at the cut-away view below. Study it feature by feature . . . and then compare! You will agree with experienced oil burner men everywhere that "*this is it*".

For complete details write the United States Burner Division, The Carlin Company, Wethersfield, Connecticut


ELECTRO-MAGNETIC FUEL CONTROL Provides instantaneous cut-off of fuel supply when motor shuts off. Eliminates muck and soot. Boiler stays cleaner longer. No after-rumble. Combustion is maintained at full efficiency. Eliminates carbonization of nozzle tip and electrodes.
EXCLUSIVE VERNI-FLAME CONTROL An exclusive development that provides vernier flame adjustment with an ordinary hex wrench. Nothing to take apart. Servicemen can completely eliminate "feathering" and obtain a perfect cone flame simply by turning adjustment screw to left or right.
Perfected scroll design of housing assures most efficient air delivery.
Precision-built fuel unit — flange mounted for positive alignment with fan and motor.
Proper size air impeller for rated capacity of burner.
Extra heavy adjustable base.
Primary air adjustment.
Finned collar ring for efficient mixture of air with oil.
Special hollow spray nozzle for perfect flame development.
High Temperature Combustion Head.
Extra long glazed porcelain electrode insulators.
Preformed phosphorous bronze bus bars — last a lifetime — no insulation to deteriorate — simplifies servicing.
10,000 volt shielded transformer ideally located for electrical and bus bar connections.
Long-hour heavy-duty oil burner motor — flange mounted for extreme quietness.
EASIER FASTER SERVICING Entire electrode assembly can be removed or replaced in less than two minutes. Note the exclusive bus bars that replace old wires. They quickly snap in or out of special transformer clips and have no insulation to deteriorate. Entire motor-fan unit can be quickly removed by unscrewing just two bolts.

O. T.*
SERVICEMAN SAYS:
"I prefer Webster Electric Fuel Units because . . .

THEY'RE QUIET!"

"To me that has always been an important feature. It's great to have quiet performance for the entire range of rated pressure—that's one of the features that helps me to have satisfied customers. *Through long experience* I have found that gears, pump and porting of these Webster Electric Units are designed to give quiet operation under maximum pressure and vacuum conditions. Vapor trapped between gear teeth is continuously relieved, eliminating the noise often found under high vacuum conditions. By installing Webster Electric Fuel Units I've ended complaints on noise. They're really quiet . . . and they're tops in my book."

*"Old Time"

WEBSTER ELECTRIC
Webster Electric Company, Racine, Wisconsin. Established 1909

"Where Quality is a Responsibility and Fair Dealing an Obligation"

Hampshire State Board of Fire Control has accepted the recommendations of the Institute in preparing proposed regulations to govern the installation of oilburners in the State. A public hearing was held at the State House, Concord, N. H., on June 2 to consider the regulations, at which Fred N. Beckwith, executive secretary, represented the Institute.

The efforts of the Institute, along these lines, have been directed at having adopted a set of uniform regulations throughout New England, covering the installation of oilburning equipment and the storage of fueloils. New Hampshire marks the third state where definite progress has been made, the other two being Rhode Island and Massachusetts. It is proposed to approach authorities in the state of Maine next and then Connecticut.

Warm Air Association Honors Dr. A. C. Willard

AT THE DEDICATORY program of the new University of Illinois mechanical engineering building on May 12, the National Warm Air Heating and Air Conditioning Association, Cleveland 14, Ohio, honored Dr. Arthur Cutts Willard, president emeritus of the University. Dr. Willard's name and research will be perpetuated with the hanging of a bronze tablet in the foyer of the new building. The tablet was presented at the conclusion of the ceremony by Frank L. Meyer, Chairman, Research Advisory Committee of the Association and George Boeddener, managing director.

During the thirty-two years in which the Association has conducted research activities at the University, Dr. Willard has been a guiding force and has contributed to the experiments that have resulted in the improvement and standardization of the design, installation, operation and servicing of central warm air heating systems. From the knowledge and data gained in these activities have come the design and installation manuals published by the Association.

◈

WILLIAMSON HEATER CO., Cincinnati 9, Ohio, offers catalog No. 30 on its line of forced air pipe and fittings, featuring the latest extended plenum system.

Manufacturers Activities

Burnham Boiler Outing For Company's Suppliers

THE NINETEENTH annual golf outing of Burnham Boiler Co., Irvington, N. Y., was held June 26 at the Tamarack Country Club, Greenwich, Conn.

The unique feature of this outing is that none of the company's customers are included in the list of invitations, however large and important they may be. The guests are all officials and representatives of the companies from which Burnham buys its own needs.

Of the total 106 persons present at the banquet which followed the golf match, 42 were officials and staff members of Burnham and 64 were guests.

Low match score of 82 was credited to Al Hall, Burnham's public relations director. High score of 157 was turned in by Parker Tyler, Jr., head of the advertising agency of that name. Tyler was rewarded with a book, "How to Play Golf," by Sam Snead. About 50 other prizes, ranging from a matched set of irons down to a flashlight were given other players, based on scores.

Skaggs Named New York Tank Cleaning Representative

ANNOUNCEMENT has been made of the appointment of Norris Skaggs, formerly of Skaggs-Walsh, Inc., Long Island City, N. Y., as New York metropolitan area representative for National Tank Cleaning Corp., Baltimore.

He has established the National Tank Cleaning Corp., Flushing, N. Y., organized to sell the Visa-Clean method of removing water, sludge, and scale from fueloil storage tanks. The tank cleaning equipment consists of a metal rod that sweeps the bottom of the tank at inch intervals, a suction pump line and a hose line to a container on the truck parked outside.

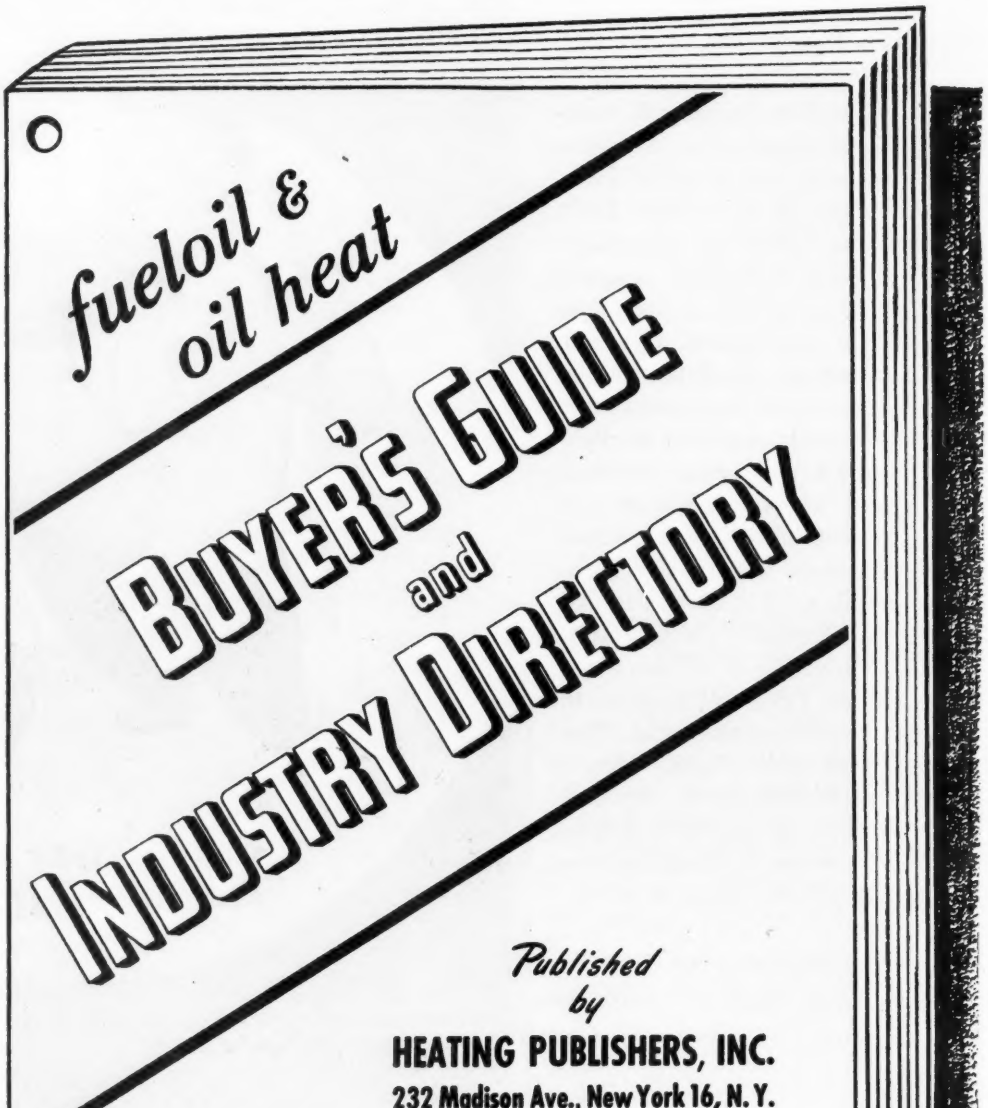
B & K Changes Its Corporate Name

FRANK BARRA, president, has announced the B & K Tank Gauge Corp., Paterson, N. J., as the new name of the B & K Plastic Co. The company manufactures a line of tank gauges and other oil

O. T.*
SERVICEMAN SAYS:
"I prefer Webster Electric Ignition Transformers because . . .
SNAP! . . . THEY WORK EVERY TIME"
"My proof of top performance comes from experiencing year-in and year-out trouble-free operation of Webster Electric transformers. I've found it means fewer complaints, fewer service calls and results in greater profits for me. But that isn't all—I like the easy interchangeability, wide adaptability, extra sized junction boxes for easy connection, separate mounting plates for easy replacement. I don't know what makes it 'spark', but whatever it is, it gives me sure-fire operation every time. You guessed it—we 'Old Time' Servicemen like Webster Electric transformers. They're best for my money."
*"Old Time"
WEBSTER ELECTRIC
"Where Quality is a Responsibility and Fair Dealing an Obligation"

Where the Heck Can I Buy IT?

NO need to get all hot and bothered in finding out where to buy something, especially items you need only occasionally. The BUYER'S GUIDE, directory of your industry, tells you where to buy anything oilheating men need. It's thoroughly cross referenced. Quickly and easily you can find out where to buy anything you use. If you're puzzled about such things as a diaphragm, a mixing valve, a heating coil, quick connectors for hose couplings, vent caps, vitrified clay pipes or rust solvents, the BUYER'S GUIDE has an answer for you about these and hundreds of items you require regularly.



●

CATALOG *of* OIL BURNER MFRS. *included in the* GUIDE

●

1,152 MFRS. more than 6,500 LISTINGS

●

Price $2 Per Copy. Send for Yours Today.

●

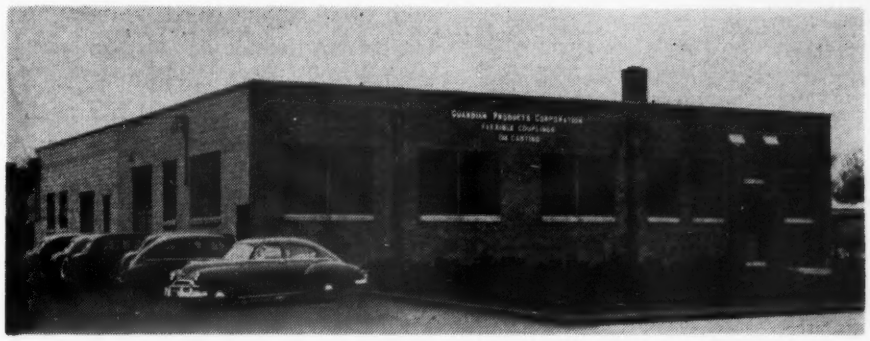
In addition it lists in a separate section all burner manufacturers and gives the names of most executives of these concerns.

●

Please send check, money order or cash with order to avoid bookkeeping on the thousands of small orders we must handle to service the field.

HEATING PUBLISHERS, Inc.

232 Madison Avenue
New York 16, N. Y.



The plant *of Guardian Products Corp., Michigan City, Ind., has been enlarged recently, nearly doubling its space. Construction of a new addition has been completed and houses production machinery for the Guardian line of oil control, radiant heat and water supply valves. The original plant space now is devoted entirely to production of Guardian flexible couplings and additional equipment for producing this line has been added.*

equipment, including gauge poles, folding gauge sticks and caution signs.

Also disclosed was the election of Ronald B. Hilaire as secretary of the company, also sales manager.

Gorton Distributing Card Showing Air Outlet Sizes

A PLASTIC PLATE, which Gorton Heating Corp., Cranford, N. J., has been distributing and offers to the trade, shows the actual sizes of air outlets of

Gorton Vapor Equalizing Valves for radiators and Gorton Air Eliminators for mains and unit heaters.

The plate is printed in green on a white background, and is here reproduced at about ½ of its actual size.

Alstrom Corp. Opens Philadelphia Office

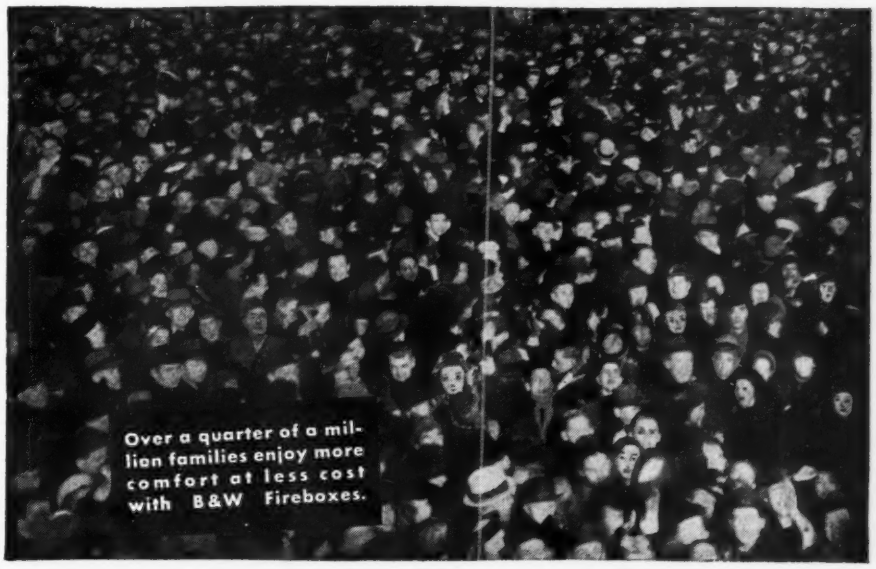
ALSTROM CORP., New York, N. Y., manufacturers of Vacuumatic water heaters, has opened a Philadelphia office under the direction of Robert N. Alstrom. Founder and former owner of the corporation, he is a pioneer in the development of tankless hot water heaters.

The new office is located in the 1700 Walnut St. Bldg.

Quality Specialty Moves To Larger Office Space

QUALITY SPECIALTY CO., INC., Philadelphia 21, Pa., recently occupied larger and improved quarters at 1515 W. Jefferson St. According to Carl Jay, president of the firm which produces the line of "QS" heating equipment, including flow control valves, the new location provides better and more convenient facilities for pick-ups by local jobbers. One improvement is the ample parking space for cars and trucks provided at the W. Jefferson St. address.

Sales-making FIGURES FOR FUEL OIL DEALERS



In today's competitive market the dealer needs a sales story that's backed up by convincing facts and figures.

The sales figures on B&W Insulating Firebrick are real "convincers" for the dealer who installs better fireboxes made of B&W I.F.B.

Your prospects know they can't go wrong on fireboxes built with the B&W Refractories that—

1. **Save fuel due to more efficient combustion**
2. **Minimize odor, soot and smoke**
3. **Assure smoother, quieter burning**
4. **Respond quickly to thermostat demands**

And you, Mr. Dealer, can't go wrong on the refractories that minimize maintenance problems and nuisance calls for free-service.

Why not send for your copy of the B&W FIREBOX HANDBOOK? Find out how following the B&W method of firebox construction can lead to more sales for you.

R-299

B&W REFRACTORIES PRODUCTS

B&W 40 FIREBRICK • B&W JUNIOR FIREBRICK
B&W 80 GLASS TANK BLOCKS • B&W INSULATING FIREBRICK
B&W REFRACTORY CASTABLES, PLASTICS AND MORTARS

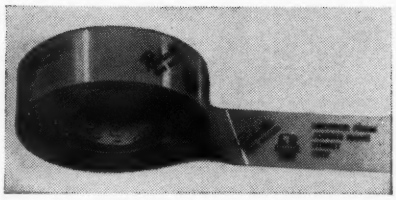
OTHER B&W PRODUCTS

Stationary & Marine Boilers and Component Equipment
Chemical Recovery Units... Seamless & Welded Tubes... Pulverizers
Fuel Burning Equipment... Pressure Vessels... Alloy Castings

BABCOCK & WILCOX

THE BABCOCK & WILCOX CO.
REFRACTORIES DIVISION
GENERAL OFFICES: 85 LIBERTY ST, NEW YORK 6, N.Y.
WORKS: AUGUSTA, GA.

Tape Identifies Jobber Handling Rochester Products



JOBBERS are being offered a convenient, low-cost method of identifying their name with the products made by Rochester Mfg. Co., Rochester 10, N. Y. The company proposes to affix a bright yellow and black scotch-tape label on each individual carton of products ordered, including gauges, thermometers and test kits. The label will contain the jobber's name, address and an illustration of the Rochester tank gauge. The labels will be applied by the company, or, if desired, the jobber may affix them in his own shipping department. A nominal cost to cover the cost of the tape will be made, but Rochester will apply the stickers at no cost.

A set of twelve blotters, imprinted with "Bull of the woods" illustrations taken from the popular cartoon, also is available to jobbers. All illustrations are humorous, with adequate space provided for the jobber's name, address and a short message.

Oil-O-Matic Continues Drive For Off-Season Burner Sales

WITH THE CONCLUSION of a highly successful campaign during April to increase off-season burner sales, Williams Oil-O-Matic Div., Eureka Williams Corp., sponsored a June-Unit campaign, along similar lines. The April effort, which featured an offer of an electric clock thermostat without extra charge, resulted in an increase of 115% over 1949 and exceeded by 25% the expected sales for the month, according to E. H. Davison, general sales manager.

He listed the following as "satisfactory conditions" that would result from an increase in off-season sales: Stabilization of employment and decrease of factory and retail overhead; higher annual sales volume; elimination of sales losses through lack of equipment or insufficient installation crews in the late Summer and early Fall peak period.

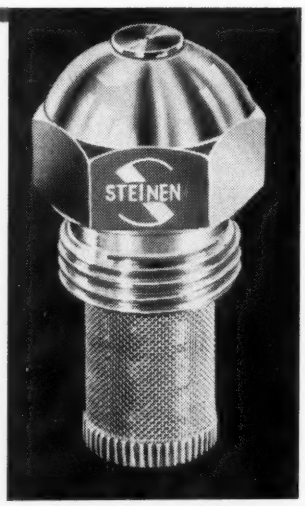
The June campaign required dealers and salesmen to promote sales and installations during that month instead of later in the year. As an incentive, the company awarded prizes in direct proportion to the number of sales achieved by dealers and salesmen.

W. L. Sneltjes, advertising and sales promotion manager, announced also that Oil-O-Matic has taken to television to push off-season sales. The company co-sponsors with local dealers a Sunday night program, Telenews Weekly, over WPIX-TV, New York, featuring International News Service newsreel from 10:00 to 10:20 P.M.

Albany Supply Offers Conversion Burner Package

A COMPLETE PACKAGE, offered by Albany Automatic Supply Co., Inc., Albany 1, N. Y., contains all the items needed for an oilburner conversion installation. Designated Package No. 4, a one year factory guarantee on all parts contained therein is included. There are fifteen items included in the basic package, which may be taken with or without a 275 gallon tank. The kit contains

STEINEN
Mirror Finish
NOZZLE
Assures Better Burner Performance



1. Mirror finish causes heat deflection and prevents carbon collection.
2. Micro-atomized spray for intensified heat.
3. Uniform shutoff.
4. Nozzles are interchangeable for different types of burners.
5. Each nozzle individually tested to assure accuracy of rated capacity.
6. Made in hollow and solid spray types.

Metal stampings and screw machine products of all kinds such as air bands, air shutters, bushings, adapters, etc. made to your specifications.

NOZZLE AND TOOL KIT

A real "must" for every installation and service man. Heavy steel box contains a metal tray that holds 22 nozzles in plastic containers, 3 adapters, a vial of additional strainers and one of cleaning sticks. Tool compartment equipped with one 1/4" MPT pressure gage with 1/8" adapter, one offset wrench, 5/8" and 3/4"; one screw driver, one nozzle brush, one nozzle jig. Kits can also be supplied with any combination of above items.

NOZZLE KIT

Contains

60 Nozzles
4 Adapters
Nozzle Jig
Light Weight
Metal Tray

WILLIAM STEINEN MFG. CO.

43 Bruen Street • Newark 5, N. J.

STEINEN *THE SEAL OF QUALITY PRODUCTS*

Simplify Servicing

with

LOVEJOY L-R

Pat. & Pats. Pend.

FLEXIBLE COUPLINGS

Just reach for the right L-R Coupling—and you have the right coupling for YOUR job. L-R is standard in the oil heating trade; fan mfrs. supply fans with L-R jaws on hubs. Dependable and economical.

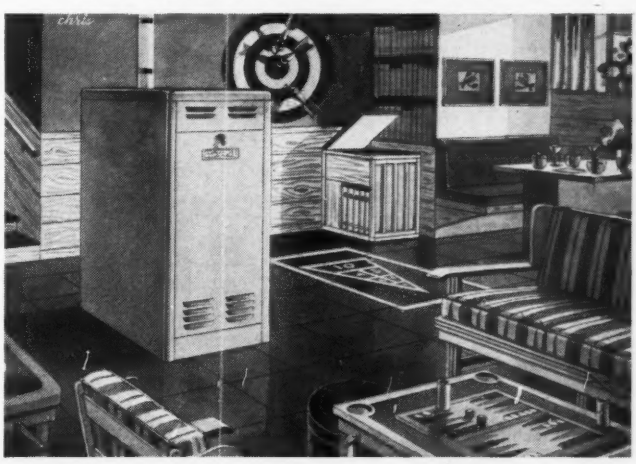
Write for catalog and prices.

LOVEJOY FLEXIBLE COUPLING CO.
5012 W. Lake Street Chicago 44, Ill.

ALSO MFRS. UNIVERSAL JOINTS AND VARIABLE SPEED TRANSMISSIONS

Koven WATERFILM BOILERS

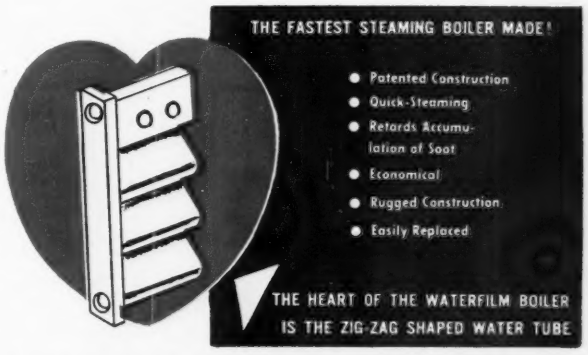
FOR FASTEST HEAT AT LOWEST COST!



Feature the WATERFILM Boiler and help your customer solve his heating problems. WATERFILM provides quick heat, saves fuel, and maintains an even temperature throughout the house. And here's *why* it's the fastest steaming boiler made: In its exclusive zig-zag water tube only a ¾" film of water has to boil to produce steam—thus heat starts rising long before the main body of water in the tank is even warm.

Beautifully jacketed WATERFILM Boilers supply plenty of domestic hot water at all times and give years of dependable service. There are models and sizes for small homes, apartment houses and industrial plants. For these larger installations, the Sectional Boiler can be taken through a 2-ft. door. 500-17, 850 E. D. R. NATIONALLY ADVERTISED. Write for free literature and newspaper mats.

EVEN ROOM TEMPERATURE THROUGHOUT THE HOUSE!

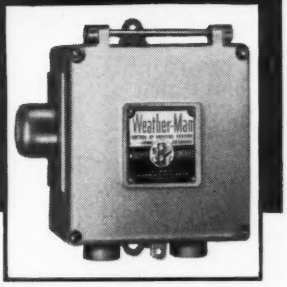


WATERFILM BOILERS, Inc.
A Division of L. O. Koven & Bro., Inc.
154 Ogden Ave., Jersey City 7, N. J.
Plants: Jersey City, N. J. Dover, N. J.

FOR AUTOMATIC FIRING WITH OIL, STOKER OR GAS

WHERE ELSE CAN YOU FIND AN "OUTDOOR" CONTROL

. . . so ideal for large buildings, yet priced so low that residences everywhere are using it.



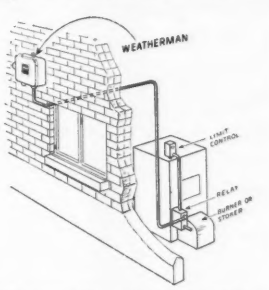
SAVES FUEL FOR OWNERS ...MAKES MONEY FOR YOU

Never before a fully automatic "outdoor" type control priced so low! Here's comfort, economy and fuel conservation for the residence or larger building at no more than the cost of an ordinary thermostatic control. A genuine opportunity to make substantial profits.

Does all these things automatically

1. Changes the time of morning start-up and night shut-down as the weather changes. 2. Regulates day heating to keep indoor temperature uniform. 3. Shuts off heating when outdoor temperature rises above 65°. 4. Use with coal, gas or oil in hot water, steam or warm air systems.

3 CONTROLS IN 1



Thousands of successful installations in every part of the country.

DISTRIBUTORS: WRITE FOR FRANCHISE INFORMATION.

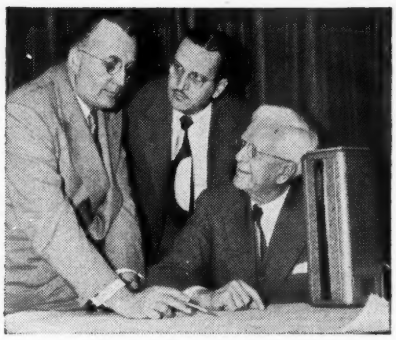
THE WEATHER-MAN

AUTOMATIC DEVICES CO., Inc. • 53 W. Jackson Blvd. • Chicago 4, Ill.

a nationally advertised high pressure gun type oilburner, with all standard parts and a 8" blast tube, three controls, capacity up to 2 gph, is the nucleus around which the package has been assembled. Other standard items are a basement storage tank, combustion chamber, draft regulator, 10 lbs. of wet refractory, 3/8" oil valve, a coil of 3/8" O.D. copper tubing, single fuse switch box, oil tank gauge, oil filter, two copper tube fittings, 1" or 1¼" vent cap, a tank signal, roll of rubber tape and a 1½" or 2" fill box. All the components are nationally recognized parts, offered as a package at a very competitive price. At a small additional cost, the package may be ordered with a 15" blast tube for installations requiring it.

W. C. Coleman Feted On Eightieth Birthday

WILLIAM C. COLEMAN, president, Coleman Co., Inc., celebrated his 80th birthday on May 21 and observed, at the same time, completion of fifty years of active service with the company he founded at the turn of the century. A foremost manufacturer of gasoline lamps and lanterns and other gasoline appliances, Coleman also produces automatic home heating equipment, including the Blend-Air warm air system.



W. C. Coleman, *right, founder and president, Coleman Co., shown with his two sons, Sheldon and Clarence, as they study plans for the second factory planned in Toronto, Canada. Mr. Coleman, long past the age when most men retire, announced on his 80th birthday that he would break ground on June 1 for the new plant, which is expected to be in production about the first of next year.*

In Wichita, Kan., where Mr. Coleman has lived more than 48 years, Mayor Earl K. Duke proclaimed May 14-20 "Coleman Week." A series of dinners, luncheons and special meetings honored Mr. Coleman, climaxed by a Chamber of Commerce dinner on May 18, at which Arch N. Booth, manager of the Chamber of Commerce of the United States was principal speaker. During the week more than 2,500 congratulatory messages were received, including those from President Harry S. Truman and General George C. Marshall.

At the May 18 meeting, John Gregor, Memphis business executive and civic leader extended birthday greetings on behalf of several hundred Coleman outlets in the form of telegraphed orders for two and three-quarter million dollars worth of heating equipment and appliances. Festivities included also a mammoth birthday party staged by Coleman employees, featuring a huge birthday cake lighted by 80 gasoline lanterns of the type long identified with the firm, and an old-timers' dinner at which 57 employees, each with 30 or more years of continuous service, toasted Mr. Coleman.

WHY Electrol Oil-Fired Equipment Has NO Competition!

No One Has These 7 Exclusive Sales Features!
Entirely Different Burner! Easier To Sell!
Exclusive Franchises To Dealers!

MASTER AIR COMPENSATOR
No other burner gives a serviceman absolute control of the fire. At first adjustment—a PERFECT FIRE! Works regardless of varying nozzle characteristics. Means still quieter operation, more intense flame. Cuts installation and service time.

CUT-OFF VALVE
No other burner has this quick shut-off valve at nozzle. No oil drooling. No fouled nozzles.
No after drip. No costly magnetic valves needed. Less service.

MASTER CONTROL
No other burner has a control operating on clean air instead of corrosive flue gases. Burner mounted, wired and tested at factory. No relays. No transformers. Less service.

SOOT FREE HEAD
No moving parts in head. No adjustments whatsover. Impossible to get sooting condition. Wide electrode clearances. Non-dust clogging. Less servicing.

BALL FLAME
No other burner has this suspended intense flame. Rotating fire never touches wall of chamger.
Burns 100% "cat cracked" oil without adjustment. Cleaner Boilers. Less service.

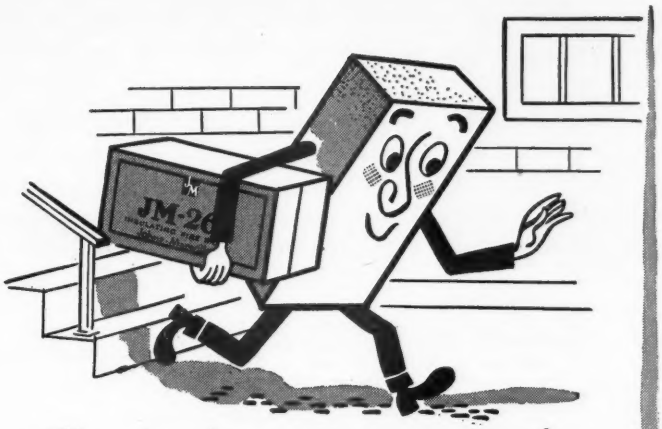
THERMO-LOOP
No other burner has this pure nickel heat exchanger. Operates safety control on pure air. Located right in combustion chamber.
Constant performance regardless of flue gas temperature. Less service.

SPIRALON
No other burner uses a large expensive casting to deliver air to combustion head. Because of this, no other burner has Electrol's intense flame. Highest alloy flame director. Prevents burnt air tubes. Less service.

SINCE 1918
ELECTROL
BURNER MANUFACTURING CO., INC.
Rutherford New Jersey
FAMOUS BALL FLAME EFFICIENCY

Complete Line—Burners, Boilers, Conditioners, Water Heaters

DEALERS! *Exclusive Sales Agencies Available. Write Today!*



I'm light in weight!

...and easy to carry on the job

I'm an insulator!

...I heat up quickly ...but cool fast, too

I'm adaptable!

...can be readily cut to build any size or shape of firebox

I'm Johns-Manville Insulating Fire Brick!

...I bring more profits per job to you ...more heat per gallon to your customers

Excuse me—for taking pride in what I can do for you and your customers . . .

You'll find that I'm *so* easy to work with . . . so easy to cut and shape with just a hacksaw blade into square, round, oval or pear-shaped fireboxes . .

. . .Then just dip me into J-M 1626 Bonding Cement, and rub me into place . . . fill in behind me with J-M Dobfill. Presto, the job is done!

I'm not kidding about my light weight, either. Brother, you won't have to break your back lugging me around!

And here's a little earful on what I can do for your customers. I cut fuel use up to 10%. I get up skin heat in seconds! I don't have to absorb heat like dense firebrick. This means the firebox gets hot faster eliminating wasteful burning of fuel. Because of this, too, I help retard soot smoke and odor. Also, my cellular structure makes for quieter operation.

I'm available in six types...JM-1620, JM-2000, JM-2300, JM-2600, JM-2800—and for industrial use the new JM-3000. See your distributor about me, or write to Johns-Manville, Box 290, New York 16, N. Y. In Canada, write to 199 Bay St., Toronto, Ont.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville INSULATING FIRE BRICK

"For Skin Heat in Seconds" in Fireboxes

Honeywell Forms Atlantic Region, Foreign Convention

FORMATION of a new mid-Atlantic region, with headquarters at Philadelphia, Pa., has been announced by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn. The region will comprise the Philadelphia, Washington, Baltimore and Richmond territories, and it is anticipated that several new branch offices will be opened later this year within the area. Albert H. Koch has been named manager of the region, which formerly was part of the Eastern zone with New York headquarters, but which has been formed to better handle the company's growing business on the eastern seaboard. Arnold Michelson, eastern regional vice-president, will assist in supervising.

Albert H. Koch

Mr. Koch has been with the company since 1929, worked in the Cleveland and Atlanta office and most recently was Philadelphia branch manager. Lloyd S. MacGann, with Honeywell since 1936 and formerly Baltimore branch manager, has been transferred to Philadelphia as regional sales manager for the company's commercial division. Succeeding him in Baltimore is Merritt Eusey, formerly branch manager at Albany, N. Y.

Managers from six European subsidiary companies of Minneapolis-Honeywell were at the home office in June for the first meeting they have held as a group at Minneapolis. They also held a week-long meeting in Philadelphia at the company's industrial division. William H. Westphal, manager of the international division, reported that the company's business in Europe is following a pattern of constant growth and announced also the establishment of a new subsidiary company in Paris, and the opening of an office in Puerto Rico to handle sales, service and installation there and in the Dominican Republic and the Virgin Islands. Edward Smart has been named manager of the Puerto Rico office.

Amazing New Improved
WALKER
DRAFT REGULATOR
SAVES UP TO 25%
on All Types of Fuel . . .
COAL, GAS & OIL!

TYPE 34C for space heaters, water heaters, and stoves.

NEW BOX HINGE IS FRICTION FREE
Seals bearing points from soot, moisture and rust. Won't clog or stick. Maintains positive draft values exactly as adjusted.

Over 7 million now in use!

●Yes, now you can save up to one-fourth on fuel cost and get *more* efficient heating performance. The new, improved, automatic Walker Draft Regulator assures maximum fuel combustion under *all* stack conditions. This means *even* heating and prevents unnecessary heat loss up the chimney. It's quickly installed, easily adjusted, and low in cost.

Manufacturers can improve the performance of their heating equipment by specifying Walker Controls.

There's a Walker Regulator to fill every need, too . . . from a small stove to a giant industrial boiler. Each is factory tested . . . each guaranteed to give positive automatic action.

WALKER TYPE 34

For any type of domestic furnace in stores, small office buildings and apartments. Sizes 6-20 inches. Rust and corrosion resistant. Listed as Standard by Underwriter's Laboratories. Shown with installation collar.

WALKER MFG. & SALES CORP.
St. Joseph, Mo.
World's largest factory producing Automatic Draft Regulators exclusively . . . not competing either directly or indirectly with producers of any type heating equipment.

COMMERCIAL and INDUSTRIAL

(Ball Bearing) Built to meet toughest conditions. Sizes 16-36 inches. Ideal for power plants, schools, garages, industrial plants, laundries . . . Thousands in use!

WALKER Automatic DRAFT REGULATORS

The World's Largest Draft Controls Factory.

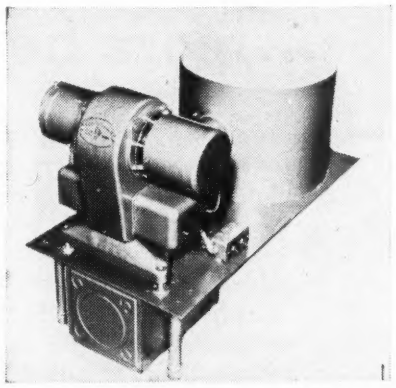
Walker Manufacturing & Sales Corp.
17th & Penn St., Dept. 20
St. Joseph, Mo.

Please send me more information on the full line of Walker Automatic Draft Regulators. No obligation, of course!

Name_____
Firm_____
Address_____
City_____ St._____

Showroom Demonstrator For Combustioneer Oilburners

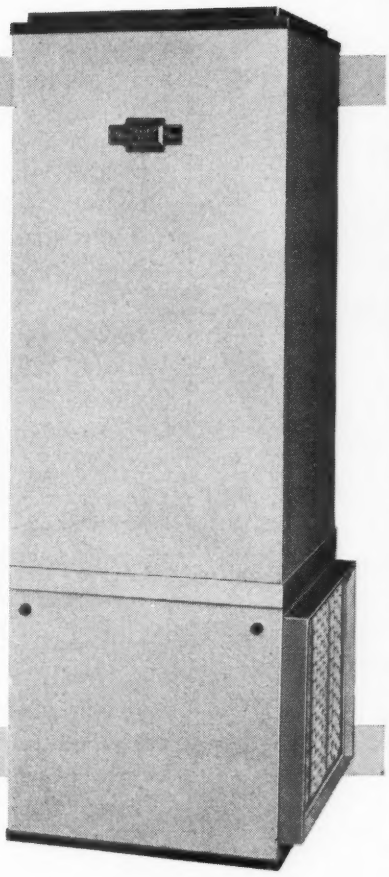
A DEOMONSTRATOR UNIT has been developed by Combustioneer Div., Steel Products Engineering Co., Springfield, Ohio, to permit dealer demonstration of its recently announced oilburner. The



demonstrator is portable, can be used indoors on the display room floor or carried outside and used with an extension cord.

A regular brick refractory combustion chamber is secured to the end of

does a BIG heating job in SMALL space!



Now . . . you can install famous Quiet MAY oil heat in the smallest homes, where basement or utility-room space is at a premium.

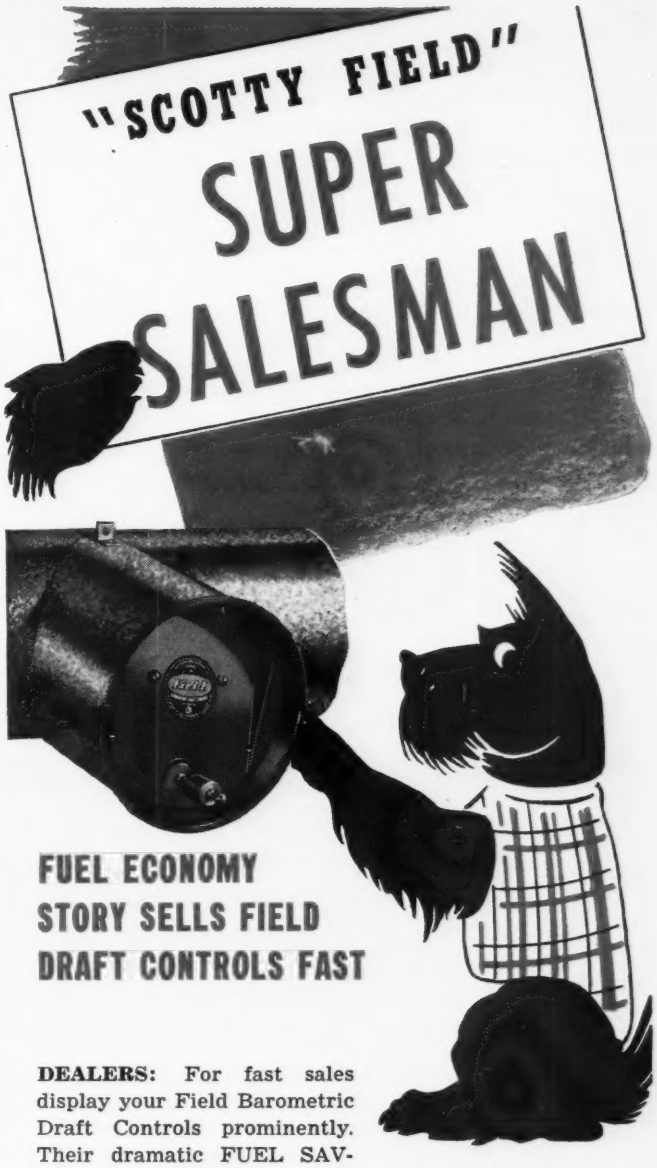
This compact Quiet MAY furnace-burner unit is engineered for top efficiency . . . designed for easy selling! Write for dealership data on Model AC—90—HB.

new Hi-Boy unit fired by the

QUIET MAY OIL BURNER

MAY OIL BURNER
Division of Gerotor May Corp. Box 86, Baltimore 3, Maryland.

"SCOTTY FIELD" SUPER SALESMAN



FUEL ECONOMY STORY SELLS FIELD DRAFT CONTROLS FAST

DEALERS: For fast sales display your Field Barometric Draft Controls prominently. Their dramatic FUEL SAVING story makes them best-sellers, self-sellers!

A Field Barometric Draft Control improves the performance of any heating plant—provides for lower fuel consumption, increased safety, longer plant life. That's why dealers find it profitable and easy to sell the efficient, durable Field Barometric Draft Control. Write today for complete information on the Field Barometric Draft Control line.

On The Finest Heating Equipment Field Controls The Draft.

FIELD BAROMETRIC DRAFT CONTROLS

FIELD CONTROL DIVISION
H. D. CONKEY & COMPANY MENDOTA, ILLINOIS

AFFILIATES
CONCO MATERIALS HANDLING DIVISION
CRANES—HOISTS

field REGISTERED

AFFILIATES
CONCO BUILDING PRODUCTS, INC.
BRICK—TILE—STONE

BAROMETRIC DRAFT CONTROLS

the blast tube to reproduce the action that takes place inside a boiler or furnace. The demonstration is intended to show prospects the downward flame created by the burner's Triple Velocity Visorhead and the manner in which oil is burned in the base of the combustion chamber.

Harvey Portable Relay Analyzer, Cleaning Bulletin

A PORTABLE relay analyzer, a counterpart of the instrument used in its relay rebuilding department, has been demonstrated by Sid Harvey, Inc., Valley Stream, N. Y. It gives a visual demonstration of the functions of any make or model of a combustion relay and is used to explain to service men how to determine in the field when a relay is defective and how to replace it. The instrument is not for sale and is intended for demonstration purposes.

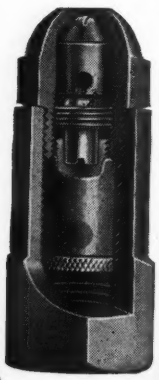
The company announces also availability of a 12-page bulletin on its line of tools and supplies for summer clean-ups. Pictured, described and priced are seven models of furnace vacuum cleaners, with their attachments, as well as furnace, tube and chimney brushes, soot destroyers, guns and other accessories. Featured are three new heavy duty dust bags developed for G.E. and Premier furnace cleaners.

MONARCH

A "TIP" FOR TOP PERFORMANCE

Most any nozzle will produce some kind of a fire, but—until you have tried Monarch Stainless Steel Nozzles (of a type with spray characteristics matched to your air mixing equipment) you won't know how good they really can be. Advise make of burner and sketch or accurately describe air mixing head and make test YOURSELF with the series Monarch Nozzles we recommend.

Pulsation: Write for new Circular No. 51849 on our "Anti-Pulsation" equipment.



F-80

The G-74 Combustion Head

The Monarch G-74 Head embodies an entirely new approach to efficient means for intimately mixing air with atomized oil to provide a highly efficient controlled flame.

Note these features:

1. Suitable for capacity sizes from .75 GPH to 2.50 GPH.
2. Simple to install and there is no "guess work" about the settings.
3. Price—Less than the cost of a good fuel unit.

Replacement Valves

Monarch G-49 piston type pressure regulating and cut-off valves are available in models to suit most replacement needs. They can be mounted in any position and piston will not jam from dirt. Contain no bellows or diaphragm to break or corrode. Rugged Brass bodies, with stainless steel pistons.

Write for Catalog D

MONARCH MFG. WORKS, INC.

2503 E. ONTARIO ST.

PHILADELPHIA 34 PENNA.

European Distributor: A. Coutau, Rue de la Scie No. 16, Geneva, Switzerland

Kresky Sales Contest Winners Spend Week on Pacific Coast

FIVE DEALERS for Kresky Mfg. Co., Petaluma, Calif., earned a week on the Pacific Coast after excelling in a sales contest. The contest was conducted by Charles Martin Distributing Co., Atlanta, Ga., distributor of the Kresky oilheating line. The winners, who were flown to San Francisco were greeted at the airport by C. A. Miller, Kresky president, and A. J. Matot, vice president.

The winners were: Dewey Pennington, La Fayette, Ga.; Hoke Randall, Covington, Ga.; Ernest Orr, Tucker, Ga.; Ralph Bradley, Cartersville, Ga.; William Bristow, Atlanta; William Simmons, Charlotte, N. C. They were accompanied by Allan Davis, St. Petersburg, Fla., southeastern division sales manager for Kresky.

McDonnell & Miller Moves Offices to New Building

ON JUNE 10 McDonnell & Miller, Inc., Chicago, Ill., moved into a new building especially planned to accommodate its general offices. The new address is 3500 North Spaulding Ave., Chicago 18.

Previously located in downtown Chicago, the offices now are adjacent to a plant McDonnell & Miller built a short while ago on the northwest side of the city.

Gorman-Rupp Names Eastern Representative

APPOINTMENT of the Charles W. M. Coote Co., Inc., West Orange, N. J., as its eastern representative has been announced by Gorman-Rupp Co., Mansfield, Ohio. The company produces a complete line of engine powered and electrical motor driven pumps. In the Metropolitan New York area the Brand-Welch Sales Co., New York, will handle the sale of Gorman-Rupp products to the major oil companies.

Charles Coote, head of the eastern representative, has a long record of serv-

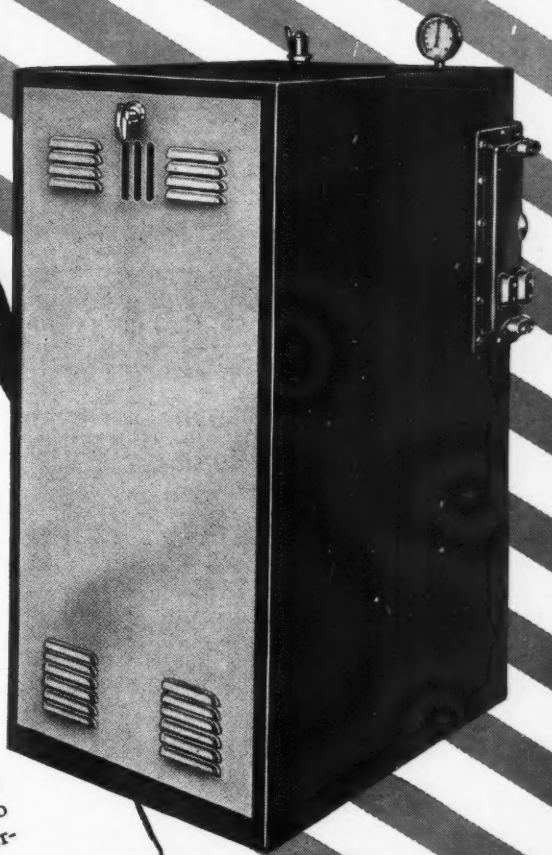
Another new addition to the Gilbarco line!

Oil-Fired CAST IRON BOILERS

Gilbarco dealers can now offer compact, handsome, highly efficient cast iron boiler-burner units bearing the name and the guarantee of one of the world's largest and oldest manufacturers of oil heating equipment. These new boiler-burner units — in four sizes — plus conversion burners, steel boiler-burner units, suspended and surface type furnaces and warm air conditioners add up to the greatest sales opportunity ever for Gilbarco dealers.

Installation of the new boilers is fast and easy with patented nipple design. Heat-trap type flues make for outstanding economy of operation. And the exclusive ECONOMY CLUTCH — the greatest sales feature in the oil heating field today — assures clean, quiet, low cost heat.

Write today for information about these new boiler-burner units, and the complete Gilbarco line. There are still some highly profitable dealerships open west of the Appalachians.



CONVERSION AND REPLACEMENT BURNERS
BOILER-BURNER UNITS • WARM AIR CONDITIONERS • INDUSTRIAL BURNERS

Gilbarco

THE OIL BURNER WITH THE ECONOMY CLUTCH

Gilbert & Barker Mfg. Company
West Springfield, Mass. — Toronto, Canada

ice in the petroleum industry, beginning in 1933 in the laboratories of the Standard Oil Co. (N. J.). He later was with Davisbilt Products Co. and in 1948 entered the pump field, which resulted in the establishment of his own firm in 1949.

Iron Fireman Launches Series of Sales Rallies

A TOTAL OF TEN sales rallies were held by Iron Fireman Mfg. Corp., Cleveland, Ohio, during the month of June to bring the company's dealer organization up-to-date on mid-year developments, current sales thinking, techniques of successful merchandising and new Iron Fireman plans. The first rally was held in Cleveland on June 1, followed by other meetings at Toronto, June 5; New York, June 7; Atlanta, June 9; Chicago, June 14; St. Louis, June 16; Denver, June 19; Seattle, June 23; Minneapolis, June 26; and Madison, June 28.

Cy Burg, president, headed the group that conducted each meeting, along with E. C. Webb, vice president; H. M. Cutshaw, domestic sales manager and S. H. Kibbe, industrial sales manager. Each rally began at 10 A.M. and ended at 5 P.M.

Cyclotherm Names Distributors; Opens New York Branch Office

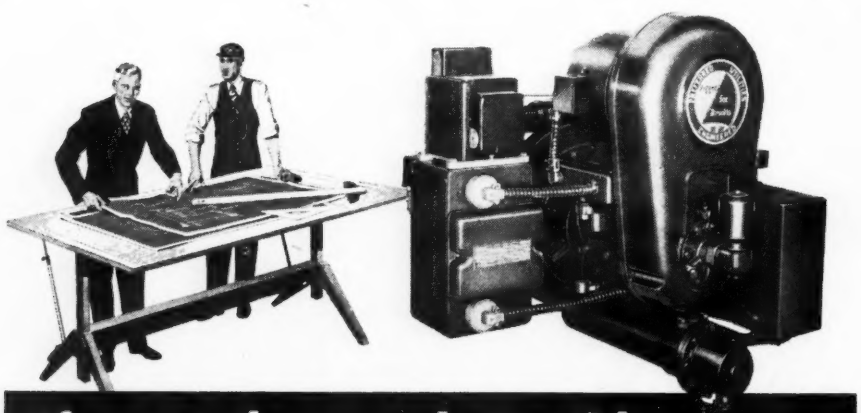
NINE DISTRIBUTORS have been named by Cyclotherm Corp., Oswego, N. Y., described by Lewis H. Dietz, vice-president and general sales manager as the result of a national program inaugurated to make Cyclotherm sales and service available in all principal areas and cities. Also, the company announced establishment of its own branch office at 60 Hudson St., New York, with a sales and service department directed by Emil Zisek.

The distributors named are: Rumbold Co., Atlanta, for the state of Georgia; Phillips Eng. Co., Detroit, for the state of Michigan; Bingham and Risdon Co., Green Bay, for the state of Wisconsin; General Industrial Supply Corp., Fort Worth, for western Texas; Royster H. Johnson Co., Charlotte, for North and South Carolina; Dempster Bros., Knoxville, for Tennessee; Keady Sales Corp., Chicago, for northern Illinois; Air Conditioning Engineers, Inc., Mobile, for lower Alabama, Mississippi and northern Florida; and Flagg, Brackett & Durgin, Inc., Boston, for the New England States.

Lennox Consumer Advertising Shifted to Magazines

LAST SPRING Lennox Furnace Co., Marshalltown, Iowa, embarked on its first national advertising campaign, according to *Tide* magazine, and placed its copy in 185 newspapers. Late in March, E. R. Champion, Lennox's merchandising manager, confirmed the effectiveness of the campaign by crediting advertising as the major factor in the 10% boost the company's sales attained in 1949.

The first campaign is being followed by a second this year, with about the same budget, a total of $1,200,000, including the estimated amount 5,000 dealers will spend to continue the unusual tie-in effort initiated last year. One drastic change is being made, however. All Lennox copy this year will run in consumer magazines instead of newspapers.



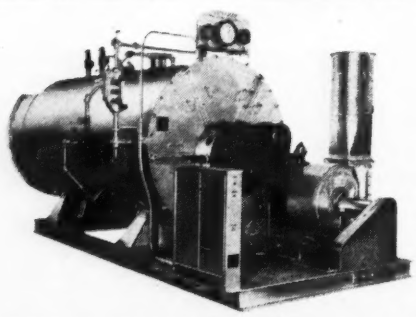
If YOU designed an oil burner...

If you designed an oil burner, you would certainly capitalize on your experience as a dealer or installer. You would include improvements which you know would increase sales, simplify installation, and minimize maintenance.

That is exactly what happened when Preferred designed the new Horizontal Rotary-Type, Heavy-Oil Burner... for Preferred was a dealer, installer, and distributor before becoming a manufacturer.

For complete information, write Preferred today. Ask for bulletin 175.

DEALERS: There are some exclusive dealer territories still open. Write and outline your qualifications for the territory in which you are interested.



PREFERRED'S UNIT STEAM GENERATOR *the only boiler with all these features*

- Preferred-built 4700 rpm Horizontal Rotary Oil Burner—assures fully automatic operation even with No. 6 oil.
- 4-pass, high velocity, gas travel—minimizes tube cleaning maintenance by self-cleaning action.
- Staggered tube construction—minimizes the possibility of tube pitting, even at low firing rates.
- Anti-stress deck for tube sheet protection.
- Self-cleaning induced draft fan with air cooled shaft and bearings—built to last 30 years.
- Down-draft gas travel for 80% thermal efficiency—proved and guaranteed.
- Special precipitator developed by Preferred as aid to safe and clean operation.
- Dual purging cycles for positive elimination of gas stratification.

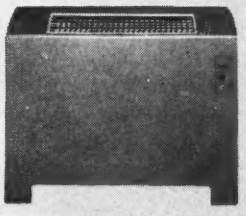
For complete details of these and other Preferred features, write today for Bulletin 1000.

PR-192

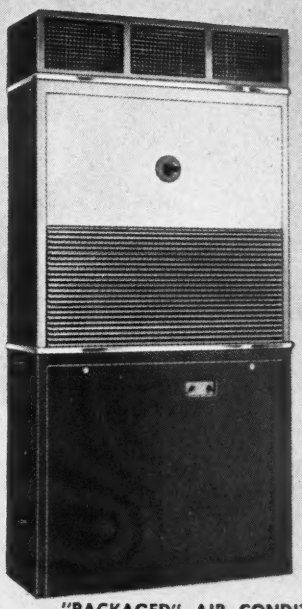
PREFERRED UTILITIES MFG. CORP. • 1860 BROADWAY, NEW YORK 23, N. Y.

PREFERRED UTILITIES — Rugged for Results — ENGINEERED

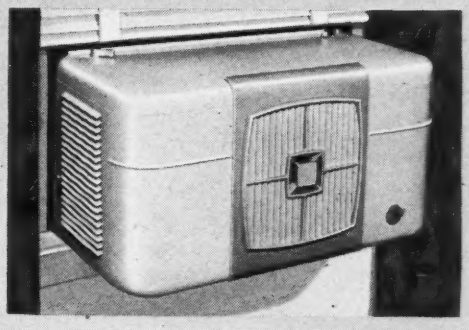
let Chrysler Airtemp guide you to GREATER PROFITS



INDIVIDUAL ROOM UNITS



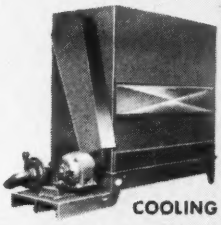
"PACKAGED" AIR CONDITIONERS



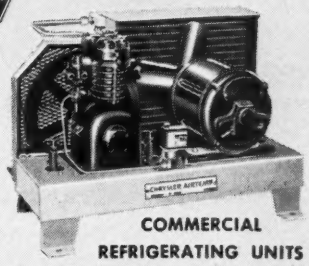
ROOM AIR CONDITIONERS

DEHUMIDIFIERS

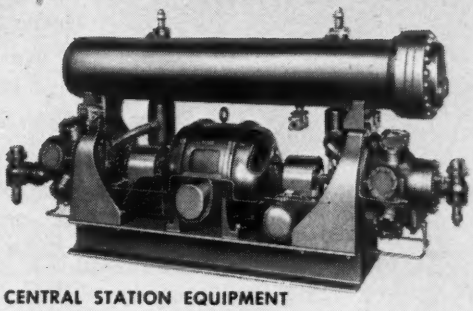
CHRYSLER AIRTEMP



COOLING TOWERS



COMMERCIAL REFRIGERATING UNITS



CENTRAL STATION EQUIPMENT

Sell "More Air Conditioning at Lower Dollar Cost"

The word's getting around—"CHRYSLER AIRTEMP's the deal!" And smart dealers are joining up thick and fast. There's been an increase of 44% in the past 12 months.

There's reason aplenty for this increase. Look at these Chrysler Airtemp profit-builders: Brand new products—Brand new merchandising program — and a brand new nationwide finance plan. PLUS the Airtemp "Basic 6": 1. Year-'Round Line of Merchandise. 2. National Advertising Support. 3. A World Famed and Trusted Name. 4. Factory-Trained Sales-and-Service Team. 5. Products That Lead The Field. 6. Facilities For Big-Volume Production.

Check what Chrysler Airtemp offers. Look it over point by point. You'll find here's everything you need for building big sales—and big profits. Mail coupon today for full franchise information.

SELL CHRYSLER AIRTEMP HEATING WITH "AERFIRE COMBUSTION"
A complete line of Home Heating equipment—new in design and performance — provides 12 months Profit Opportunities.

Chrysler Airtemp

AIR CONDITIONING • HEATING • COMMERCIAL REFRIGERATION
AIRTEMP DIVISION OF CHRYSLER CORPORATION
DAYTON 1, OHIO

Airtemp Division of Chrysler Corporation, FO&OH-7-50
Dayton 1, Ohio

Please rush me complete details on the attractive, profitable Chrysler Airtemp franchise agreement and a full outline of your new products for year-'round sales.

Name_____

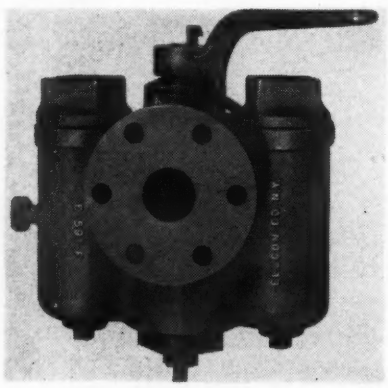
Address_____

City_____ Zone____ State_____

New Products

Ellcon Strainers for Industrial Oilburners

IMPROVED models of types DES and DEF (illustrated) duplex strainers have been designed by Ellcon Co., New York 7, N. Y., for use on industrial oilburner



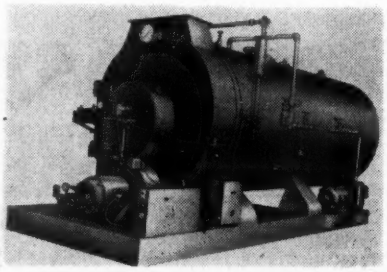
installations. The strainers are compact and simple to operate, the flow of liquid being changed without interruption from one basket to the other by moving the valve key handle through a 90° arc. The basket not being used then can be removed easily for cleaning.

Types DES strainers are offered in I.P.S. sizes of ½", ¾", 1", 1¼" and 1½" for screwed connections; DEF in ¾", 1", 1¼" and 1½" sizes for flanged connections. Both types feature perforated sheet brass baskets and are designed for working pressures of 250 lbs. After assembly they are hydrostatically tested at 500 lbs. pressure.

Cyclotherm Steam Generator For Pressures Up to 200 Psi

NO. C300 steam generator added to its line of steam generators by Cyclotherm Corp., Oswego, N. Y., can be fired with light or heavy oil, gas or combination gas and oil operation. It is available in pressures from 15 to 200 psi and is shipped fully equipped with an integral burner, automatic safety and operating controls, steam trim, valves and other equipment necessary to comprise a complete outfit.

Units are assembled, piped, wired and test-fired before shipment and the entire boiler surface is covered with fibre glass insulation, over which is fitted a metal jacket. Operation when delivered depends only upon connection to water,

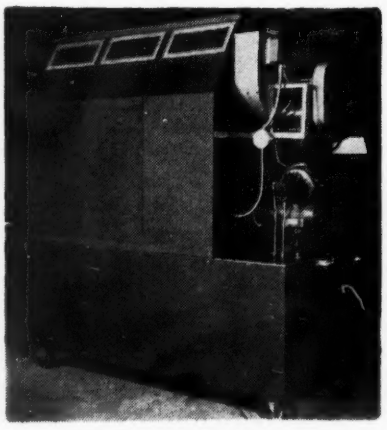


steam, fuel and electric supply. The Cyclotherm unit requires no stack, a simple flue vent to exhaust gases outside the building being sufficient.

National Portable Direct-Fired Oilburning Industrial Heater

A LINE of portable, direct-fired oilburning heating units developed by National Heater Co., St. Paul 4, Minn., consists of five models with capacities ranging from 300,000 to 1,800,000 Btu/hr. The heater is a completely packaged, mobile unit, factory wired and tested and contains its own built-in oil storage tank and induced draft blower. Standard equipment includes a stainless steel combustion chamber, adjustable discharge grilles and screened air intake.

The entire heater is mounted on heavy-duty roller bearing casters, and smaller models are only 32" wide, permitting easy transportation through narrow doorways. Construction features a tear-drop combustion chamber



design and convector tube arrangement for complete air wipage of all heating surfaces. Both motor and blowers operate on ball bearings, equipped with extended oilers for easy servicing.

Preferred Utilities Anti-Syphon Valve Approved for No. 6 Oil

A NEW ANGLE-TYPE anti-syphon valve, announced by Preferred Utilities Mfg. Corp., New York 23, N. Y., has been approved by Underwriters Laboratories for use with No. 6 oil. The new valve, type A, is avaliable in 1¼", 1½" and 2" sizes for 5 or 10 ft. head pressures and takes the place of an elbow when installed at the high point in the suction

line. It features a built-in dashpot, designed to eliminate chattering.

Other anti-syphon valves offered by Preferred include types C5 and C10 in ⅜" and ½" sizes for oils up to No. 5 and B5 and B10 in ¾" and 1" sizes for oils up to and including No. 5.

Honeywell Electronic Industrial Burner Control

ADDED to the line of controls offered by Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., is an electronic sequence and safety control system for industrial oilburners. The system automatically starts and controls a series of operations to start the burner and keep it operating safely.

A flame rod, mounted in the pilot flame, is connected to the electronic relay. If the rod detects flame it prepares the circut to open the oil valve,

69

leading heating manufacturers equip their oil burning units with . . .

ABC OIL BURNERS

Sell "The Standard of the Industry"

ABC Oil Burner

AUTOMATIC
BURNER
CORPORATION

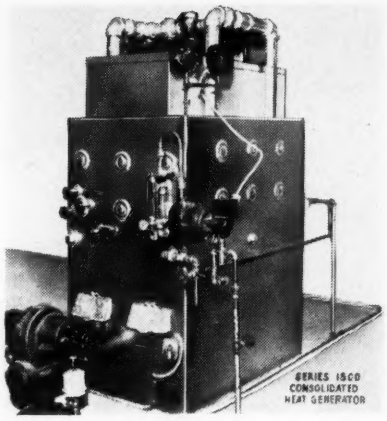
Write today for information on ABC

1823 Carroll Ave., Chicago 12, Ill.

and if there is no flame the rod will not permit the valve to function. A time delay of 15 secs. permits burner motor to come up to speed before the oil flow commences. Next, if the burner fails to ignite during a period adjustable from 5 to 180 secs., it shuts down. But if the burner starts, a photoelectric cell "sees" the main flame and when the trial run period is finished the cell shuts down the circuit to the flame rod and pilot flame. If the flame fails during operation, the photoelectric cell will close down the burner immediately.

Consolidated Introduces Large Capacity Boiler Models

TO MEET A DEMAND for large capacity boilers, capable of handling processing functions of industrial plants and large area heating installations, Consolidated Boiler Corp., Boston 16, Mass., has added models with capacities of 15 and 30 hp., illustrated. Plans call for further expansion of the line with the addition of a 60 hp. model within six months. Constructed of finest type flange steel, these ASME boilers are equipped with a special water treatment unit and



a patented dry steam chamber.

They are capable of producing a saturated steam, a steam with some saturation or a dry steam, in temperatures ranging from 220 to 550 degrees.

LYNN
POWER OIL BURNER

Spiral-Ex Head burns 100% "cat" oils efficiently

Built to last

Priced to sell

If you want a burner you can build into a business—this is it!

1. Lynn is a quality burner.
2. Definitely competitive in price.
3. Lynn's Spiral-Ex Head is the essential type of head for burning 100% "cat" oils efficiently.
4. Firing range: .65 to 15 G.P.H. Easy to install and service, adjustable under fire.

If you can sell—you can sell the Lynn *easier*. You can make it an immediate and steady income producer.

Write today *for information about distributor and dealer territory now open.*

LYNN PRODUCTS COMPANY
Box 531, Lynn, Massachusetts
Manufacturers of Oil Burners Since 1922

Dole Combination Air Chamber and Automatic Valve

CHAMBER-VENTS, announced by The Dole Valve Co., Chicago 12, Ill., are combination automatic hot water air valves and air chambers, designed to vent convectors and baseboard radiators on hot water heating systems. The valve, adjustable with a screwdriver or coin, is offered in three models. No. 20A is furnished with a ⅛" I.P.T. male connection, No. 20B, with a ¼" I.P.T. male connection and No. 20C, with a ¾" male and ½" female connection.

When operated for manual venting, the selector screw is turned counterclockwise until air blows through the valve. For manual shut-off, the selector screw is turned clockwise as far as it will go and for automatic venting the valve first is closed and then opened one-eighth of a turn.

York Steam-Pak Generators Improved and Redesigned

THE 1950 LINE of York-Power Steam-Pak Generators, a product of York-Shipley, Inc., York, Pa., have been improved and redesigned extensively.

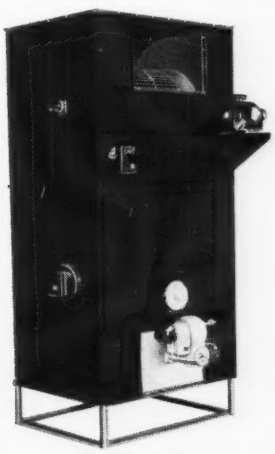
Type 50 Winter Air Conditioner — Steel. For residential and commercial installations. Pressure-atomizing burner. Four sizes, 100,000, 150,000, 200,000, and 225,000 Btu output.

Type 201 Gravity Furnace — Steel. For small and medium-size homes. With pressure-atomizing or vaporizing burner. Two sizes, 90,000, 135,000 Btu input.

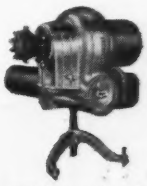
Type 202 Winter Air Conditioner — Steel. Type 201 plus forced-air circulating and filtering unit. Two sizes, 100,000, 150,000 Btu input.

Type 209 Winter Air Conditioner — Steel. Vertical installation. Blower assembly mounted in exclusive Roll-a-Drawer. Two sizes, 100,000, 135,000 Btu input.

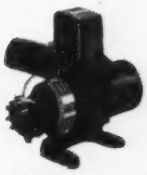
Mueller Climatrol *fuel-thrifty* Furnaces



Type OH-57 Unit Heater — For industrial applications. Pressure-atomizing burner. 250,000 Btu output.



Type 450 Conversion Burner — Pressure-atomizing type. Nozzle capacities from 1 to 5 gal. per hr. Either 12" or 20" blast tube length.



Type 460 Conversion Burner — Highly efficient pressure-atomizing type. Nozzle capacities from 1 to 2 gal. per hour.

— give you the right unit for every job with salient features no one can surpass

The Mueller Climatrol line gives a dealer everything you need for really profitable heating business. Famous quality at a good price . . . precision construction for quick, accurate assembly and easy installation . . . up-to-the-minute engineering that assures satisfying performance and minimum service requirements.

Of course the line is complete, with sizes and types for every requirement. You can compete for any job.

Then look at it from your customer's point of view. The Mueller Climatrol line gives him everything he wants, too—complete selection, durable construction, efficient design, smart styling, compact size, quiet operation, and economical performance. And the Mueller Climatrol name is famous—nationally advertised, and backed by more than 93 years of outstanding leadership.

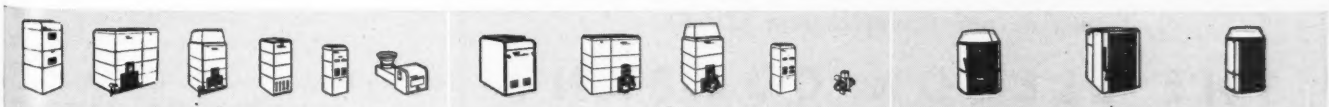
Yes, the Mueller Climatrol line is easy to sell, a pleasure to install—a really profitable line. Make the most of it. Write for the latest literature. *L. J. Mueller Furnace Company, 2195 West Oklahoma Avenue, Milwaukee 15, Wisconsin.*

F-48

93rd Anniversary MUELLER • MILWAUKEE

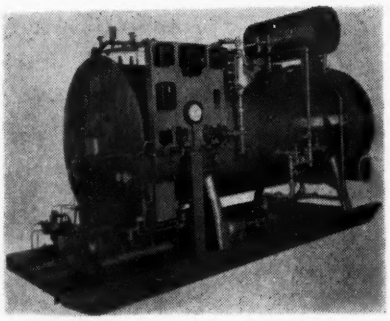
MUELLER — Climatrol

REG. U.S PAT OFF.



FOR GAS | FOR OIL | FOR COAL

Models for high and low pressure steam, 15 to 150 hp, are available for gas, oil or combination gas and oilfiring. All are equipped with the Iris Shutter, providing precision control of burner air by proper metering to match the firing rate. A new linkage assembly permits independent adjustment of blower air or fuel, while a new method of lubrication for the atomizing air compressor eliminates manual adjustment of the rate of lubrication. Electronic combustion safety controls are standard equipment.



All models utilize full welded construction of the pressure vessels and have sufficient connections to allow left, right or hand installation of panel board, gauge glass and feed water pump. A below-the-water-line connection is available for indirect heating of domestic or process water on high pressure boilers. Low pressure models are available with immersion domestic water coils. Fiberglas insulates the boiler shell, which is encased in a 14 gauge steel, insulated jacket.

YOU CAN RELY ON ELLCON-HAYWARD STRAINERS

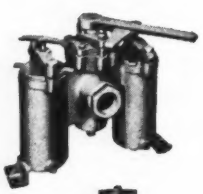
Ellcon-Hayward strainers are of the basket type, compact and rugged in design and engineered to meet your most exacting requirements.

Baskets can easily be removed for cleaning by releasing the hand screw, which operation requires no tools or other equipment.

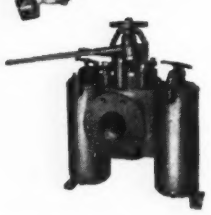
Semi-steel or bronze bodies, Screwed or flanged connections. 150# working pressure.

Type #72-S Single strainer with fine mesh basket for filtering or perforated sheet metal for straining in sizes ½"—3" I.P.S. Screwed connections.

Type #72-F Single strainer for use where flow can be temporarily interrupted for basket cleaning. Underwriters approval for burner units. 1½" to 6" I.P.S. 150# Flanges.



Type #50-S Duplex—Clean one basket while using the other without interrupting the flow—A 90° swing of key handle does the trick. ½"—2½" I.P.S. Screwed connections.



Type #50-F Duplex—Suction or discharge lines—simple and efficient unit for oil, water or any fluid. 2" to 4" I.P.S. 150# Flanged connections.

Equipment manufacturers, Distributors, Dealers, write for details on our complete line TODAY!

THE ELLCON COMPANY
30 CHURCH STREET NEW YORK 7, NEW YORK

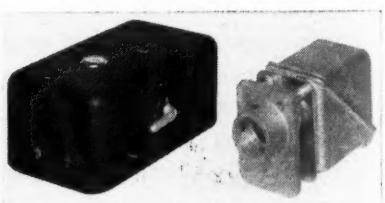
Veco Gas Analyzer Cell For Combustion Study

VECO gas analyzer cells, a product of Victory Engineering Corp., Newark, N. J., feature a reference element and analyzing element sealed in glass. Designed for combustion studies of engines and oilburners, the cell is hermetically sealed for protection of the reference and analyzing unit and can be furnished with any type of gas sealed in the reference element. The analyzing element is coated with a thin film of glass to avoid accumulation of carbon or oil impurities.

A high pressure seal covers openings in the block of the analyzing cell and will withstand 1000 psi. The new cell stays cool, is safe with explosive gases and is not affected by corrosive gases. Where desired, stainless steel or other non-corrosive alloy housing may be used for the cells, which are furnished with quick-connect electrical leads, with A.C. or D.C. circuits optional.

Fireye Control for Manual, Semi-Automatic Oilburners

FIREYE System FF-3, developed by Combustion Control Corp., Cambridge 42, Mass., is a photoelectric flame failure safeguard for manually ignited and



semi-automatic industrial oilburners. When flame fails, the system instantly cuts off fuel and can be wired to sound an alarm.

Fireye System FF-3 consists of a photoelectric scanner and control. The scanner is housed in a dust-tight aluminum case and contains the entire electronic system, including phototube and vacuum tube amplifier. It is located on the burn-

Heil *Cruiser* Tanks are designed for city delivery of gas, fuel oil, or both. For fuel-oil delivery the pump, hose-reel, and meter are located in the weatherproof, right side compartment. In summer, this equipment is easily removed and the space used for package goods and other items. *Available for immediate delivery in capacities from 1500 to 2100 gallons.*

They buy HEIL TRUCK TANKS not to *save* money

but to make money!

Many things may influence an operator in his choice of a new truck tank. But only superior, profit-making performance will bring him back again and again for more.

That's why it is significant that *3 out of 4 sales of Heil tanks are repeat sales to satisfied users.*

Heil research, special manufacturing methods and modern precision equipment now make it possible to provide custom quality at prices you'd expect to pay for ordinary tanks. Heil is *able* to give you more for your money—*and does!*

Heil truck tanks are available for immediate delivery in a wide range of styles and capacities — from 800 to 2100 gallons. Heil has no reason to recommend anything but the *right* tank for your specific requirements because Heil makes them all.

Get complete details! Send NOW — for the latest illustrated booklet on Heil gasoline and fuel-oil delivery units. No obligation, of course.

THE HEIL CO.

Dept. 3970, 3039 West Montana Street
MILWAUKEE, WISCONSIN

Factories: Milwaukee — Hillside, N. J.

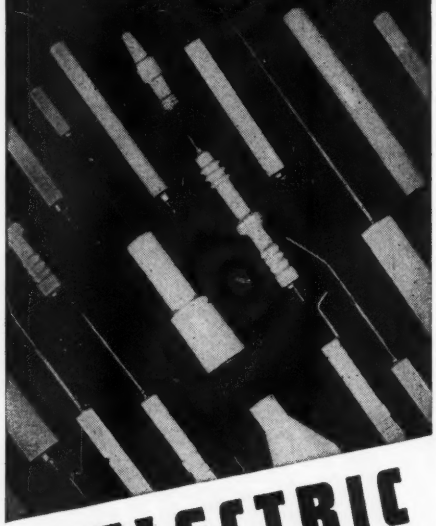
District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle

Heil *Meteor Jr.* tanks are primarily rural delivery units in which mixed loads of such products as gasoline, kerosene, diesel oil, and fuel oil may be delivered simultaneously. They are also commonly used for city delivery. *Available for immediate delivery in capacities from 800 to 1200 gallons.*

Heil *Whippet* tanks are designed for the local delivery of fuel oil. Weatherproof rear cabinet is integral with tank shell, deep enough to house hose-reel and meter equipment. Also supplied with cabinets on one or both sides. *Available for immediate delivery in capacities from 1000 to 1600 gallons.*

T-260

The Most Widely Used Ignition Assemblies for Oil Burners



DIELECTRIC
ELECTRODES • BUS BARS
INSULATORS • CABLES

STANDARD AND SPECIAL ASSEMBLIES IN ALL TYPES AND LENGTHS

The majority of oil burners being installed or serviced today are equipped with Dielectric electrode assemblies . . . and for good reason—

1—They are made with the finest steatite insulators and electrode tips . . . in any designs to meet specific burner requirements.

2—They have all Underwriters Laboratories, Inc., approvals.

3—Standard assemblies are available for quick delivery.

4—Assemblies with special insulator and electrode sizes and shapes can be made on short notice.

In addition, Dielectric high tension cable assemblies and Dielectric bus bars for transformer and electrode layouts are available for any practical burner hook-up.

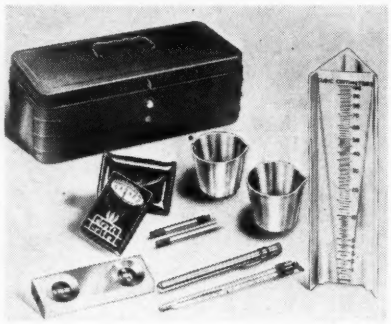
Let Dielectric's complete, prompt engineering cooperation help improve your burner and expedite production. Write for bulletin.

DIELECTRIC
PRODUCTS CO., Inc.
125 Virginia Ave., Jersey City 5, N. J.
Boston • Philadelphia • Des Moines

er mounting plate so that it has a clear view of the flame. The control, housed in a dust-tight steel case, contains power supply and relay systems and is mounted on the burner control panel. It includes a safety start circuit to prevent the burner from cycling if flame is detected or simulated prior to ignition.

Bacharach Adjusting Kit For Vaporizing Oilburners

A VAPORIZING BURNER adjusting kit, offered by Bacharach Industrial Instrument Co., Pittsburgh, Pa., contains all the instruments needed for the adjust-

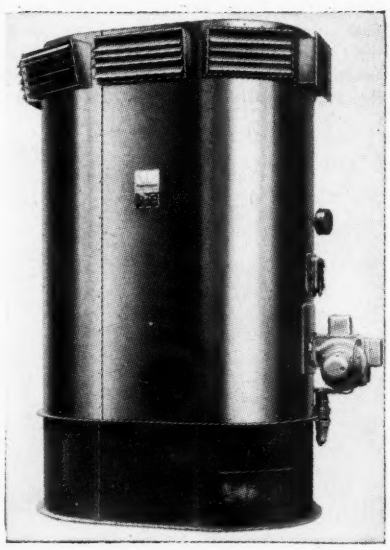


ment of oilburning space heaters, water heaters, cooking ranges or warm air furnaces that are fired with vaporizing oilburners. Each item included in the kit performs a specific function and is necessary for the proper and efficient setting of all makes and types of vaporizing burners.

The kit includes a Draftrite pocket draft gage and a cross-test level to insure that the burner, oil flow control and draft regulator are level. Two aluminum oil-collecting beakers permit collection of a sample of oil for measurement in the oil-flow gauge. These, made of unbreakable, clear plastic, are wedge-shaped to permit measurement of as little as ¼ cc, or as much as 100 cc of oil. A mercury thermometer for determining water, room or oil temperatures has a range from zero to 220 degrees F. The entire collection of adjusting instruments is packed in a compact steel carrying case.

Thermobloc Model 1000 Delivers Million Btu

TO PROVIDE a single, direct-fired unit heater where multiple smaller installations are impractical, Prat-Daniel Corp., East Port Chester, Conn., announces production of Thermobloc



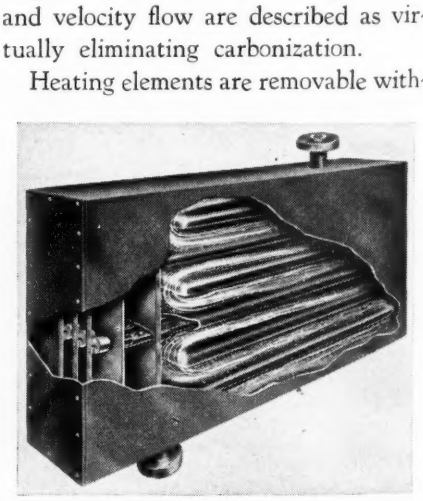
Model 1000, delivering 1,000,000 Btu/hr. The unit occupies a floor area 44" by 70", stands 9'7" high and retains all the advantages of the smaller 300 and 550 models.

Fired with a gun-type oilburner, the unit has a number of louvered outlets around the top for an even 360° distribution of low velocity, heated air. Discharge is at the working level. The unit also can be used during the summer to circulate cool air drawn from the floor level.

Hynes Electric Oil Preheater Of Multi-Pass Construction

MULTI-PASS type electric oil preheaters, announced by the Hynes Div., Martin-Quaid Co., Philadelphia 32, Pa., have flat tubular heating surfaces staggered so that the oil passes back and forth through a positive channel in a thin, turbulent stream at high velocity. The oil is uniformly heated because there are no dead spots in the channel and the large, low watt density heating surface and velocity flow are described as virtually eliminating carbonization.

Heating elements are removable with-



IT'S NEW! IT'S EXCLUSIVE!

AMAZING *Triple Velocity* VISORHEAD®

THE GREATEST ACHIEVEMENT IN OIL BURNER HISTORY!

TRIPLE VELOCITY VISORHEAD

- ★ High velocity air above nozzle deflected downward by visorhead.
- ★ Swirling velocity around nozzle thoroughly intermixes oil with air.
- ★ Low velocity below nozzle permits downward deflection.

Combustioneer OIL BURNERS

Here is the climax of five years of heating research—the amazing *Triple* Velocity Visorhead! Using three separate air velocities it achieves near perfect intermixing of oil and air for highest combustion efficiency . . . A superabundance of air always envelopes and supports the entire flame pattern. The flame is held to the hottest region—the lower section of the combustion chamber . . . Here is oil heat at its finest—a new high in comfort, economy, sales too!

This year it's Combustioneer! The Triple Velocity Visorhead will revolutionize the selling of oil burners, making Combustioneer the only oil burner *without competition!* No other oil burner has this exclusive development—no other oil burner has three-velocity carburetion. Backed by advertising and sales promotion, "TVV" can triple your sales this year! ALL COMBUSTIONEER OIL FIRED FURNACES are standard equipped with the new Combustioneer "TVV" Oil Burner.

There are Dealerships open, on a direct, Factory-to-You Basis— WRITE OR WIRE US!

District sales representatives wanted.

COMBUSTIONEER Division
THE STEEL PRODUCTS ENGINEERING COMPANY
1207 West Columbia St., Springfield, Ohio

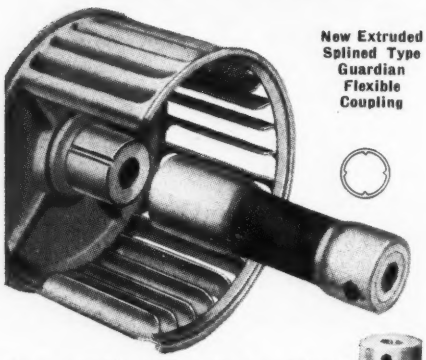
Combustioneer OIL BURNERS, GAS BURNERS, STOKERS, COAL-GAS-OIL FURNACES, HUMIDIFIERS

86%

NOW USE

Guardian

COUPLINGS



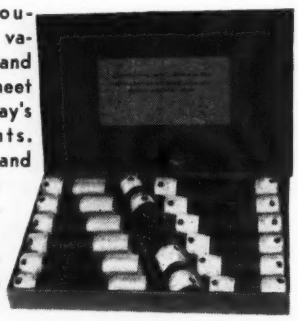
New Extruded Splined Type Guardian Flexible Coupling

Regular set screw type

Yes . . . 86% of the nation's original equipment manufacturers of oil burners in the United States are using Guardian flexible couplings. This enviable position was earned through dependability, quiet operation and long life in millions of installations. Specially treated for oil resistance . . . nothing to lubricate . . . nothing to get out of order . . . easy to install. Guardian Flexible Couplings are available in the regular set-screw type and in the new extruded splined sleeve design, fitting the hub with a close .001 inch tolerance. Both types are supplied in a variety of standard sizes or to your specifications.

COMPLETE ASSORTMENT SERVICE KIT

Contains both types of couplings in a variety of sizes and bushings to meet 97% of today's requirements. Keep it filled and be ready to make the extra profits on flexible coupling replacements.



Guardian PRODUCTS CORP.
COUPLING DIVISION

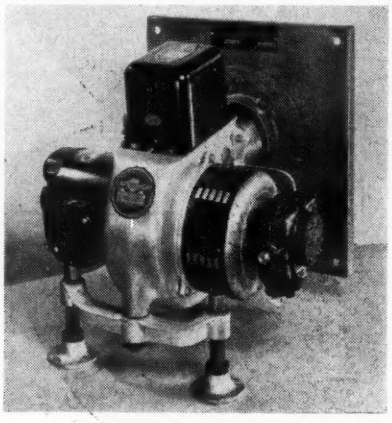
Dept. F6, 1215 E. Second St., Michigan City, Ind.

Michigan City, Indiana

out draining the oil and the heaters are furnished complete with operating and safety controls. Provision is made for inter-lock with over-all combustion controls systems. A complete range of models is available in all sizes and capacities.

Announce Improved Models In Hart Oilburner Line

IMPROVED MODELS of Hart Heat gun type oilburners have been announced by Avery Farm Machinery Co., Peoria, Ill. This, and the introduction of boiler and furnace-burner units, is the result



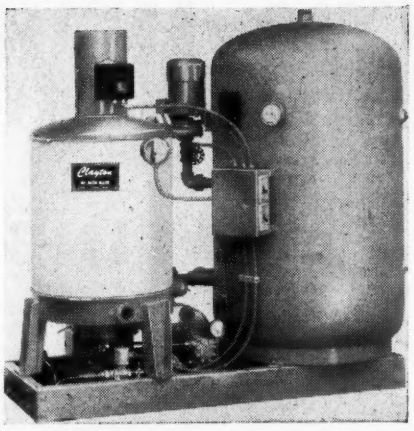
of development and organizational work that has been under way since last September when Earl K. Smith, who had been associated with the Hart line for 17 years prior to 1941, assumed sole ownership of the company.

A single basic chassis provides two capacity ranges in the line, one up to 3 gph, the other from 3 to 6 gph. Optional tube lengths available extend from 8" to 21", and models may be furnished for flange or leg mounting. All models feature aluminum fan housing and air intake, with positive alignment insured by direct drive between motor, fan and pump by machined pilot fit. Also employed is the Hart band type air shutter to facilitate regulation of entering air.

Clayton Water Heater Has 600 Gph Capacity

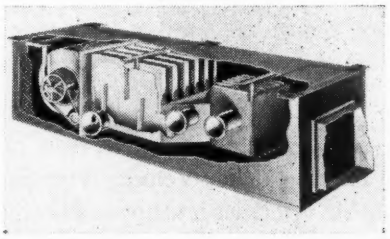
AN INDUSTRIAL WATER HEATER, announced by Clayton Mfg. Co., El Monte, Calif., has a capacity of 600 gph at 80° F. temperature rise. It utilizes a high velocity, forced circulation principle; is offered in gas or oilfired models.

The heater stands 5 ft. high, requires a floor space 5 x 3 ft., and has a 140 gal. insulated storage tank as an integral part. All controls are fully automatic, including a high temperature safety cut-off. Simultaneous delivery of hot water at two different temperatures is accomplished by means of a special blending assembly. No erection is required, since the heater is delivered complete with controls, circulating pump, burner and safety valve, ready to operate after being connected to electric and water lines.



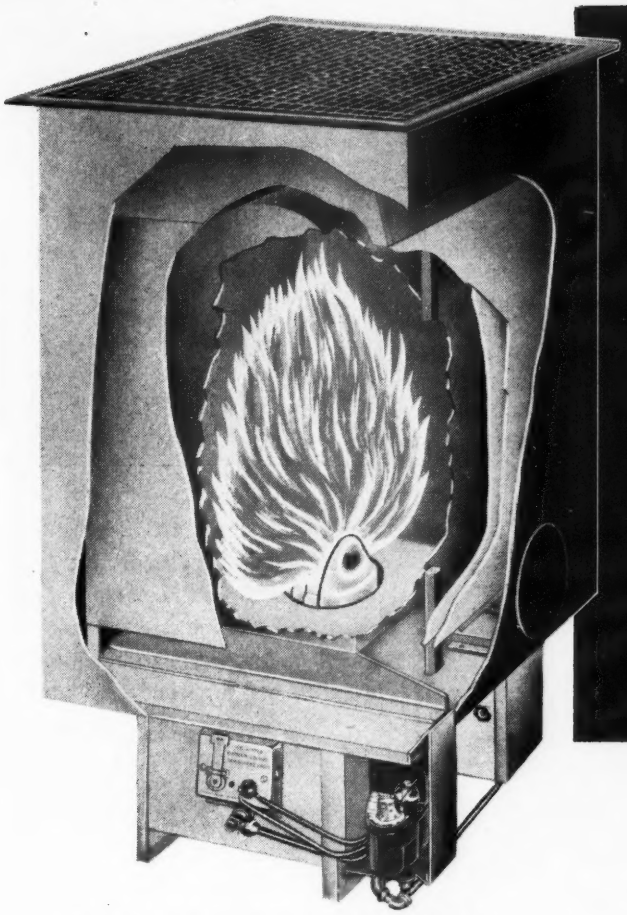
Installation of Shafconaire Suspended Heater Simplified

SHAFCONAIRE, ceiling-suspended heaters formerly known as Shafco, a product of Overhead Heaters, Inc., Detroit 26, Mich., feature a new casing assembly to facilitate handling and installation. The casing incorporates rigid built-in frame support members, as well as six external welded suspension brackets predrilled for 5/8" rods and located on the heater base to support the weight of the furnace. Engineered and built for



commercial-industrial applications, models are available from 100,000 to 405,000 Btu capacity.

Basic engineering features of the heaters remain the same. These include a built-in plenum chamber, the use of heavy gauge welded boiler plate construction to eliminate warping, buckling and burnouts. The patented Shafconaire intermediate heat-travel section between the refractory lined firebox and the heat exchangers serves to spread the flame and control the direction of hot gases. Baffle plates in each



STANDARD REGISTER MODELS—
50,000 BTU and 75,000 BTU

DUAL REGISTER MODELS—
55,000 BTU and 80,000 BTU.

Here are 3 reasons why it is EASY TO SELL H. C. Little oil floor furnaces!

1 H. C. LITTLE AUTOMATIC SELF LIGHTING COMMANDS ATTENTION

Your customer is sure to pay close attention to the ONLY oil floor furnace that automatically lights itself . . . that has no pilot light . . . that shuts itself off completely when heat is not needed. Your customer's *attention means sales*—and more profit for you!

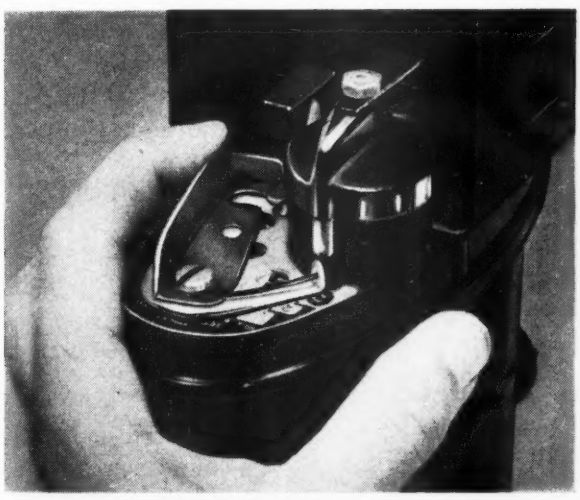
2 H. C. LITTLE FUEL SAVINGS STIMULATE INTEREST

Your customer is sure to be interested in the fact that this furnace burns low cost furnace oil (including catalytic oil) at very high efficiency. Interest mounts as you explain how the H. C. Little oil burner principle of "Progressive Low Temperature Carburetion" keeps fuel bills way down. Your customer's *increased interest means more sales*—and more profit for you!

3 H. C. LITTLE "MANUAL RESET" IS SALES CLINCHER

Your customer is sure to prefer the automatic oil floor furnace that keeps on heating, even if electric power fails! (See picture and explanation at left). Your customer's *preference* for all three H. C. Little features *means more and more sales*—more and more profit for you!

For full information write Dept. 7



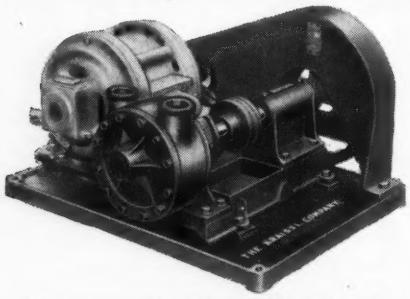
Cut shows location of manual reset lever on top of automatic oil valve. For manual operation, reset lever is pushed over, raising blade on heat motor. Oil flow is then regulated by manual oil control knob. Resumption of electric power releases manual reset lever and fully automatic operation takes over.

H. C. Little Burner Company — San Rafael, Calif.

Baltimore, Md.	Columbus, Ga.	Newark, N.J.	Salt Lake City, Utah
Belmont, Mass.	Detroit Lakes, Minn.	Portland, Ore.	Seattle, Wash.
Boise, Idaho	Fayetteville, N. Car.	Prescott, Ariz.	St. Louis, Mo.
Chicago, Ill.	Des Moines, Iowa	Reno, Nev.	St. Petersburg, Fla.

KRAISSL • SINCE 1928 • in the application, design & mfg. of pumps — separators — hydraulic accessories

for Heavy Oil Service



Class 60 PUMPS

pull cold oil!

After many years of outstanding on-the-job performance, the Kraissl "60" pump has been acknowledged as one of the most efficient for heavy oil service. For direct burner service installations—or booster service on pump type burners. Of the internal gear type, the "60" is machined to close tolerances—for maximum vacuum characteristics with heavy oil. The outstanding design advantage is the ball bearing, V-Belt reduction drive-connected to pump by means of loose coupling, which eliminates side deflection from pump shaft. Suction and discharge sizes from 1/2" to 2". Capacities, 75 to 2100 GPH; pressures to 100 psi.

Write for Bulletin A-1193

Standard & High Pressure

SEPARATORS

Adequate strainers for both suction and discharge service are essential on every heavy oil installation. Kraissl separators are available in single and duplex units for both standard and high pressure service. Available with Underwriters Labels from 1/4" to 4"; larger sizes up to 6".

Advantages of our design are: ease of cleaning; and interchangeability of separator baskets—from coarse straining to fine filtration. Cleaning of removable separator baskets restores original efficiency—thus eliminating normally expensive replacement costs.

Ask for Bulletin A-1430

If you have any special problems—or need more information—please write us fully. You will receive a prompt and detailed reply.

KRAISSL

KRAISSL CO. Inc.

295 WILLIAMS AVE., HACKENSACK, N. J.

of the heat exchanger sections are alternately spaced in series to retard the flow of hot gases. Intended for ceiling installation to save valuable floor space, the heaters can be attached as single or multiple units.

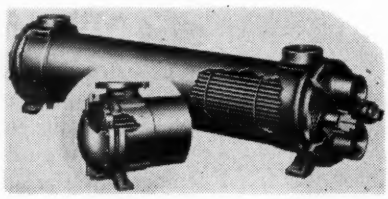
Alstrom Unit Uses Hot Waste Water to Preheat Feed Water

ALSTROM CORP., Bronx, N. Y., recommends its Gas Mizer unit for use in restaurants or self-service laundries to use hot waste water from the rinse cycles of washing machines or dishwashers to preheat cold fresh water being fed into water heaters.

The Gas Mizer receives the waste water and circulates it through a series of counterflow baffles to raise the temperature of the feed water from approximately 40° F. to 95° F. Not only is a saving effected in direct water heating fuel costs, but there is the added advantage of increasnig the capacity of the heater.

Ross Copper Exchanger With Removable Bundle

A LINE OF standardized exchangers, featuring all-cuprous removable tube bun-

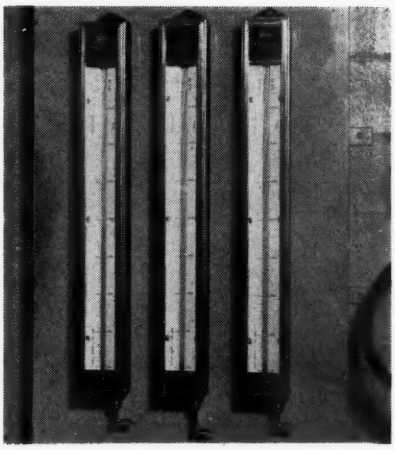


dle construction, is being produced by Ross Heater & Mfg. Co., Buffalo 13, N. Y. Designated Type BCP, the line is available in a broad range of sizes.

Originally intended for use on Navy combat vessels, extensive redesigning has adapted the units to low-cost, quantity production and has added larger transfer surface.

King U-Tube Gauges For Oil Storage Tanks

AN ACCURATE, simple means of measuring quantities of liquid in oil storage tanks is possible with King-Gages, made by King Eng. Corp., Ann Arbor, Mich. Available in standard sizes from 6" to 43" in length, the gauges use either red liquid or mercury as an indicator. The standard models measure depths of liquids from 2 to 68 ft., with special



gauges available for greater depths.

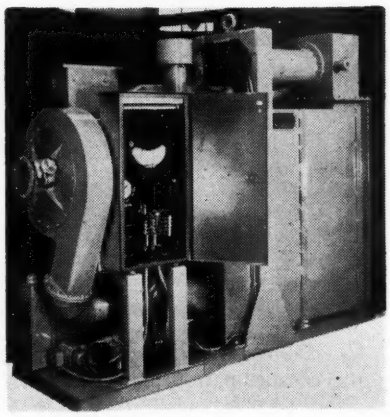
The King-Gage is a hydrostatic U-tube instrument, which balances the depth of a liquid in the tank against the height of liquid in its U-tube column. The process is accomplished without the use of any moving mechanical parts.

In refineries when used for mixing and blending operations, the gauges perform the function of a weigh-scale at a fraction of the cost.

The gauges illustrated are three model TR-20's with built-in hand pumps, available also for compressed air operation.

Todd Announces Hot Air Industrial Generators

THAG—Todd Heater Air Generator—units, announced by Todd Shipyards Corp., Combustion Eqpt. Div., Elmhurst, N. Y., develop 600,000 Btu/hr., furnished complete with heat exchanger,



metal combustion chamber, fuel pumping, straining system and air pressure fans.

A portable unit, model P, weighs 2,250 lbs., equipped with handling gear for mobile use, and has its own fuel

Warm your cold prospects

with this NEW

FAIRBANKS-MORSE
SUSPENDED OIL-FIRED FURNACE!

Space heating with suspended heating units has a big, profitable future for you! And Fairbanks-Morse is right on the job to help you make the most of your opportunities—with a new, oil-fired, horizontally suspended unit so practical, efficient and desirable that it warms cold prospects to the point where ink flows on the dotted line!

You'll find prospects for this Fairbanks-Morse unit in many places, including service stations, garages, machine shops, print shops, factories, warehouses, lofts, auditoriums, bus stations, gymnasiums, country clubs, skating rinks, sports arenas, and other places where floor space is at a premium.

Get the facts about the features and specifications of this new Fairbanks-Morse money maker. Write today to Fairbanks, Morse & Co., Heating Division, Chicago 5, Illinois.

Mail This Coupon Now!

Fairbanks, Morse & Co.
Heating Div., Chicago 5, Ill.

Send us full information about Fairbanks-Morse *new* suspended oil-fired furnace ☐. Have your representative call on us ☐.

Firm Name .....

.....

Address .....

City .....

State .....

FAIRBANKS-MORSE,

a name worth remembering

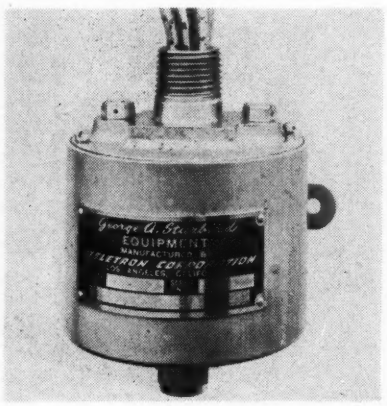
DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • PUMPS • SCALES
HOME WATER SERVICE AND HEATING EQUIPMENT • RAIL CARS • FARM MACHINERY

fueloil & oil heat

tank. Model S, stationary unit, weighs 2,110 lbs., is mechanically similar to model P, except that it has no fuel tank or lifting gear and is for permanent installation.

Dualtrol 424 Switch Is Pressure Actuated

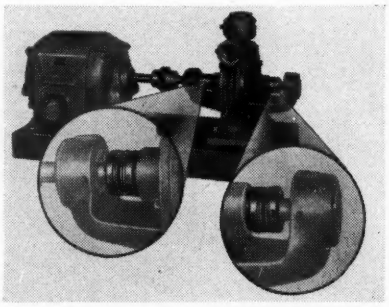
MODEL 424 DUALTROL switch, a product of Meletron Corp., Los Angeles 38, Cal., will actuate at any two predetermined pressures and uses a diaphragm sensing element to operate two snap-action switching elements. Six classes of switches provide adjustable ranges from 2" of water to 100 psi.



Housing dimensions of the switches measure 3" in diameter, 4⅛" over-all, weight 12 oz. Recommended for use as warning signals, to maintain constant pressure between two limits or as a sequence control.

Schaub Master-Bilt Line Of Boiler Feed Pumps

DEVELOPMENT of a line of Master-Bilt condensate and boiler feed pumps has been announced by Fred H. Schaub Eng. Co., Chicago 23, Ill. The new pumps feature Fleximatic mechanical seals and permanently lubricated ball bearings.



The seal is of special design to assure automatic adjustment of seal face tension proportional to internal pump pressure, plus ability to take up for nominal axial misalignment. It is described also as able to run dry if necessary for several hours without burning up the seal faces.

Compac Condensate Return And Vacuum Pump Unit

FOR INSTALLATIONS up to 25,000 EDR in heating load, American Hydrovac, Brooklyn 6, N. Y., has developed the Compac combination condensate return and vacuum pump. It uses a single centrifugal type pump for both functions, with vacuum produced by a water jet venturi system. Smallest size available services systems up to 5,000 EDR. All parts are accessible and the unit is cast-iron, with bronze fittings.

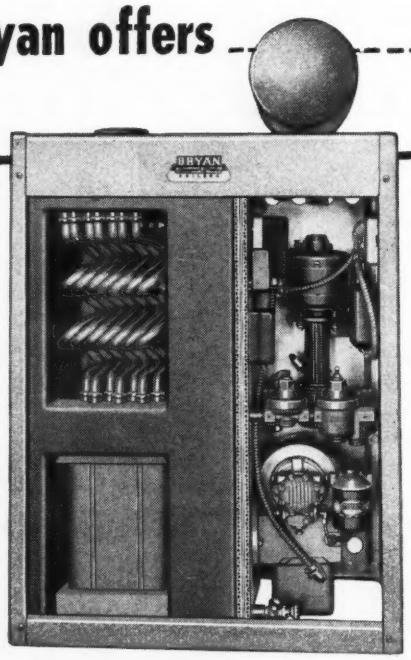
DeBothezat Induced Draft Fan for Boiler Application

AN INDUCED DRAFT Bifurcator fan for boiler application is available from DeBothezat Fans Div., American Machine and Metals, Inc., East Moline, Ill. It is a direct motor driven fan with a divided housing. Standard models range in size

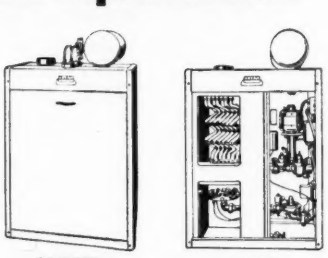
Bryan offers ------ A COMPLETELY PACKAGED BOILER FOR

radiant heat

in Small Homes and Apartments



- Light in weight.
- High efficiency copper tubes.
- Measuring but 31" wide, 41" high and 18" deep, it delivers 70,000 BTU's. Also 100,000 BTU size available.
- Green hammerloid finish.
- Oil or gas firing optional.
- Easily installed—all wiring, piping and controls assembled at factory —ready for use after connecting to water, mains, electricity and fuel lines.



CLOSED OPEN

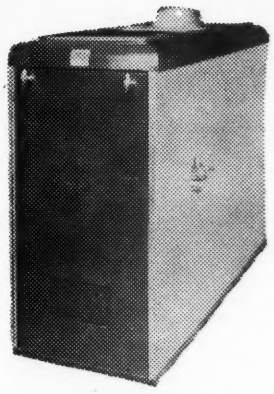
OIL OR GAS FIRED

Send for complete information

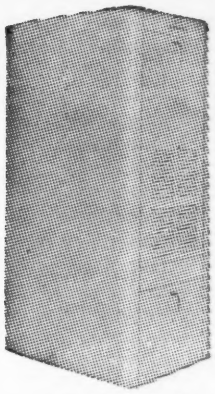
Built to A.S.M.E. Specifications

BRYAN STEAM CORP. 170 Chili Pike Peru, Indiana

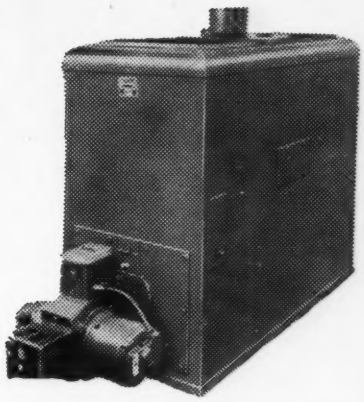
BRYAN Copper Tube BOILERS SINCE 1924



H90—LO-BOY



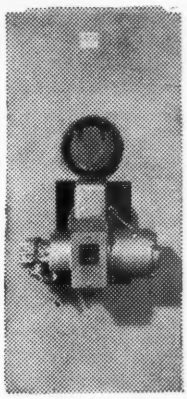
70,000 B.T.U.
HI-BOY



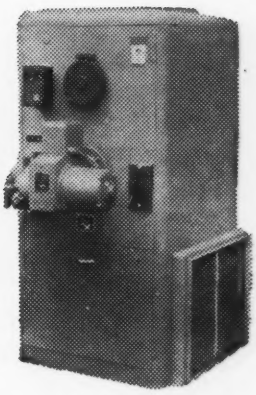
UP TO 800,000
B.T.U. CAPACITY

QUIET AUTOMATIC

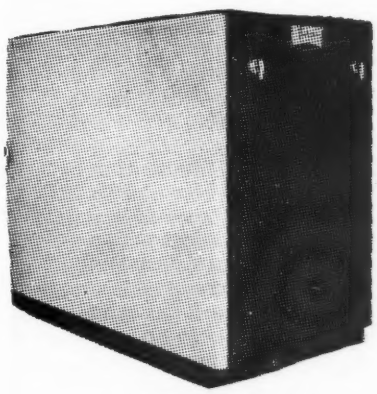
Winter Air Conditioning Equipment for Every Installation



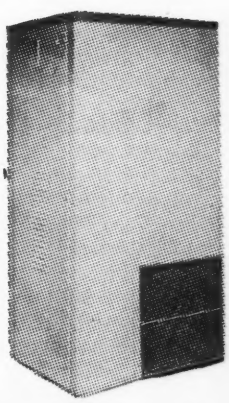
HI-BOY



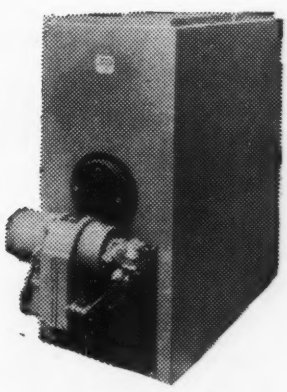
ARKAY-AMERICAN
AIR CONDITIONER



150,000 B.T.U.
TOTALLY ENCLOSED



TOTALLY ENCLOSED
HI-BOY



70,000 LO-BOY

QUIET AUTOMATIC BURNER CORP.

Established 1923

33-35 BLOOMFIELD AVE. near Broadway
NEWARK 4, NEW JERSEY

Factory and Warehouses 17-19 Grove Street, Montclair (Newark Suburb), New Jersey

HU. 2-0244
or
MO. 2-6760

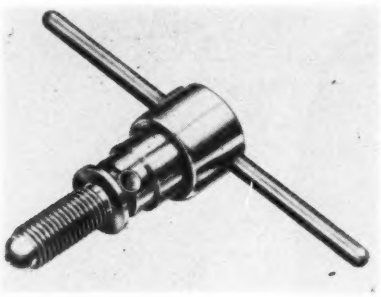
Branches or Distributors
from Maine to Florida,
Chicago, St. Louis and
East of the Mississippi

from 12" to 27", for boilers from 6 to 350 hp and up to 650° F.

The fan's motor is in an isolated asbestos-lined chamber around which flue gases are by-passed. The Bifurcator fan can be installed like a section of pipe in a vertical stack, horizontal or angular breeching.

Wilson-Dunton Safety Release Pressure Bolt

A LINE OF safety release pressure bolts has been announced by Thomas C. Wilson, Inc., Long Island City 1, N. Y. Designed as a safety factor in oilburners, strainers and for securing covers of pressure vessels against unsafe opening, the bolts are actuated by the pressure within the vessel.



A hole through the bolt body conducts fluid under pressure to a piston within the bolt head and causes the handle bar to be moved and held out of bolt turning position. Under pressure, the handle may be rotated without imparting a turning movement to the bolt. When pressure is released, the handle returns to the bolt turning position.

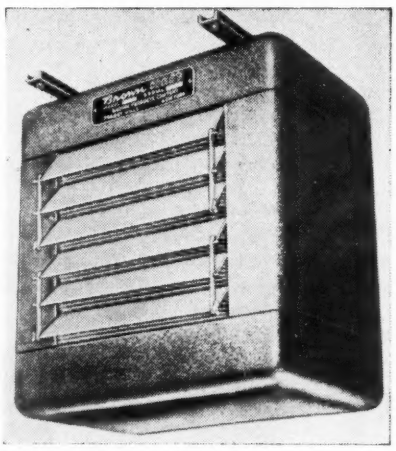
North American Adds Sizes To Dual Fuel Burner Line

TWO SIZES have been added to the recently announced line of North American Series 225 Dual Fuel Burners. Also, design improvements have been incorporated in the burners, developed for industrial applications and for firing with light or heavy fueloils and low pressure air as well as gas.

Models now are available in 1¼", 2" and 3" sizes. The burner's refractory tile has been improved to provide greater flame stability and is shipped from the factory cemented and bolted to the tile mounting plate. This procedure is described as simplifying installation and preventing the tile from separating from its mounting during operation.

Brown Heet Unit Heater Features Compactness

A HORIZONTAL, suspended type Brown Heet unit heater, added to its line by Brown Products Co., Forest Hills, N. Y., has been designed to combine modern styling with selective fan sizes. Available in popular sizes, the unit heater can be installed easily and affords unusual space economy.



The heat transfer surface of the heater is constructed of ⅝" diameter copper tubes, mechanically expanded into facetized aluminum fins.

9 out of 10 New Homes Heat with OIL or GAS

You Sell BOTH Markets with ALDRICH HEAT-PAK BOILER-BURNERS

Expand your market to 90% of new home construction with Aldrich. Sell more, with less inventory . . . cash in with oil units, cash in again with gas burners.

Mounting plates are similar; installation is fast and simple. And you can convert from one fuel to another without changing boiler set-up or performance.

7 makes 14

Aldrich Heat-Pak boilers come in 7 sizes, from 100,000 to 808,000 BTU/hr. With both oil and gas, you have 14 compact heating plants to sell everything from modern small homes to big commercial installations. Vertical-type, compact and efficient; shipped crated fully assembled, ready to set in place and connect.

Profit with ALDRICH—Get Details Today. Write or wire for Heat-Pak facts, full specifications.

ALDRICH HEAT-PAK PRODUCTS

The ALDRICH Company

103 East Williams Street, Wyoming, Ill.

A Subsidiary of Breeze Corporations, Inc.

ANOTHER BREEZE MARK PRODUCT

SITTIN' PRETTY

No matter how you look at it!

HOME OWNERS' CATALOG FOR 1950

. . . carries 8 pages in color selling Waterbury. Goes to tens of thousands of actual home builders this year.

SWEET'S FILES FOR 1950

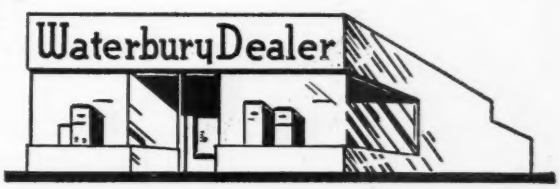
. . . contains complete Waterbury catalog. Used as constant reference by 17,000 architects and 25,000 builders.

NATIONAL HOME MAGAZINES

. . . Color ads telling the Waterbury story to millions of your most likely prospects.

NATIONAL FARM MAGAZINES

. . . A consistent advertising program selling Waterbury to this huge farm market.



HOUSE BEAUTIFUL'S MAINTENANCE AND BUILDING MANUAL

. . . in which 125,000 home planners see a Waterbury full page ad in color each year.

NEW CONSUMER LITERATURE

. . . Folders covering the complete Waterbury line . . . done in beautiful color process for more sales appeal. Furnished to authorized dealers free of charge.

FREE MAT SERVICE FOR YOUR ADS

. . . Your choice of dozens of ads for your newspaper. Mats sent to you free upon request.

DEALER DISPLAY MATERIAL

. . . Dealer signs, decals for windows, trucks, posters, clocks, outdoor signs, etc. —All available to stimulate sales.

THE WATERBURY DEALER is in a mighty choice spot these days. He's sitting right in the middle of a rapidly expanding home market that's tailor-made for his product. And we're aiming to see that he gets his share of it! He's getting modern merchandising with NO angles overlooked—for a product that looks up to no one. Wherever he is—whatever his name, the Waterbury dealer today is sittin' pretty!

Waterbury

FURNACES AND AIR CONDITIONERS

***The* Waterman-Waterbury Co.**
1171 Jackson St. Northeast
Minneapolis 13, Minnesota

Reader's Problems

Q. For months I carried a clipping from your magazine, finally convinced my boss I should follow your recommendation and install two vacuum gauges, one on each side of our big suction line strainer. We had been cleaning our strainer once a day in this industrial boiler plant.

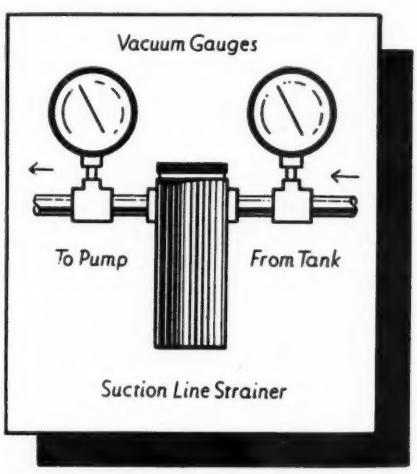
Now that I have the two vacuum gauges, installed as my sketch shows, the boss thinks I'm getting lazy because I've stopped cleaning the suction line strainer daily. When he comes through and sees the two gauges reading 12", instead of the lowest readings we ever get of 8" to 9", he asks me why I haven't cleaned the strainer.

I wouldn't mind cleaning the strainer every day if there was some good in it, but use of your rig has proved that cleaning every three to ten days is often enough, depending on how clean the oil is and how much we burn a day. I know that using the dirtiest oil delivered so far since I've got the gauges, and consuming oil at our maximum daily rate, the strainer does not need cleaning for six hours after the two gauge readings are different by 5" vacuum.

Isn't it wrong to clean the suction line strainer when both vacuum gauges show the same reading? Isn't it wrong to say the strainer is loaded, and should have been cleaned hours ago, when the difference in readings is only 5"?

I. D. B., Brooklyn, N. Y.

A. You are correct on both counts in your last paragraph. It is wrong to clean the strainer when both gauges show the same reading, simply because then the strainer does not need cleaning. When the vacuum drop across the strainer is only 5", it is wrong to say the strainer



should have been cleaned hours ago; this is premised on your knowing, as you say, that in your plant the burners can under the most trying conditions operate satisfactorily for six hours after the 5" vacuum difference occurs because the strainer is starting to plug.

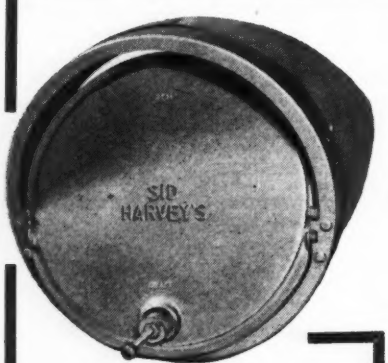
With both vacuum gauges giving readings which are the same or nearly the same, there's definitely no reason to clean the strainer. That's why use of the rig cuts out work done unnecessarily and foolishly without the rig. Both

HARVEY DRAFT REGULATOR

Nothing Cheap About It, But the Price

LOW PRICE FOR DEVELOPMENT JOBS

HIGH QUALITY FOR DeLUXE JOBS

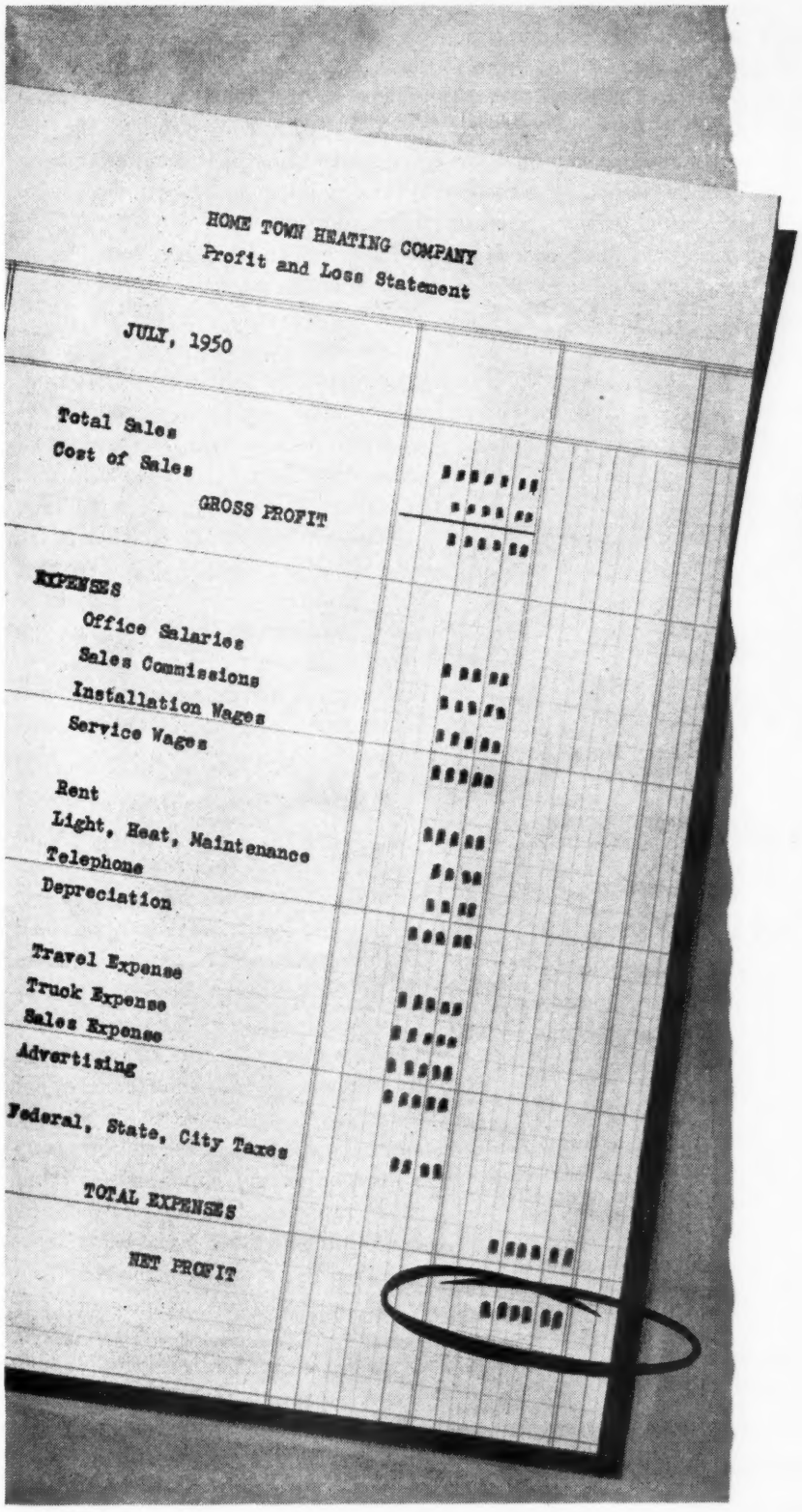


6", 7", 8", & 9" SIZES
INDIVIDUALLY CARTONED
(A Bundle is 12 cartons of one size)

It's a bargain in single lots. Even better in 2 Bundles at a time. Best price is in 8 assorted Bundles.

Interested in really low priced DRAFT REGULATOR? Write for Harvey's prices (include your jobbers name).

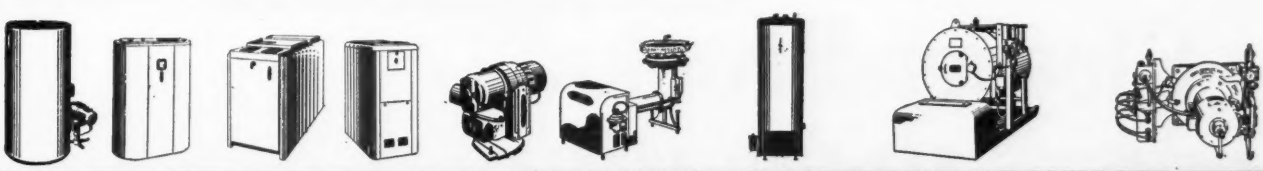
Non-Corroding
Knife Edge Bearings
•
Easy Sensitive Adjustment
Accurate as the Most Expensive
•
Accurate Tube Within
.02" Draft
•
FULL OPENING
•
PRESSED STEEL
•
Finished in Rich Silver Color
•
Detachable Thimble
Easy to Install
•
Full Instructions Furnished
•
Order thru Your Jobber



to YOU and to US—

IT'S YOUR PROFITS THAT COUNT

We want every dealer who sells York-Heat to make a legitimate profit, because profit-making dealers build reputations in their communities—stay in business. York-Heat's program puts emphasis on dealer profits. The completeness of the York-Heat line makes it possible for a dealer to sell York-Heat exclusively and to be able to tackle any job with York-Heat. Investigate the York-Heat Profit Plan, find out about the industry's longest line — strongest franchise. Write today to York-Shipley, Inc., York 2, Penna. for the complete facts.



Boiler Units Oil & Gas Fired | Winter Air-Conditioners Oil & Gas Fired | Conversion Burners Oil & Gas Fired | Water Heaters Oil Fired | Steam-Pak Generators Oil and/or Gas Fired | York Power Industrial Oil Fired Burners

YORK-HEAT *Automatic Heat At Its Finest*

gauges give the same, higher than minimum reading when the oil in the tank is colder than usual, of higher viscosity than the thinnest oil delivered to your plant, or low in the tank rather than high.

Unless your boss wants you to keep busy doing unnecessary work, he should follow your ideas on how often the strainer should be cleaned.

* * *

Q. Starting to service big burners, I went on a call on a horizontal rotary cup burner and tended to adjustment of the fire. But I found something I don't understand. The job has a 5,000 volt ignition transformer which gives a spark near the gas flame used for ignition, when the burner starts. And a small gas flame for ignition burns continually, while during starting this flame is much larger. Expanding gas pilot idea. Is an expanding gas pilot coupled to an electric spark that lights the gas if it blows out?

H.E.W., Brooklyn.

A. Not exactly. Probably the burner was intended to operate with gas-electric ignition. The solenoid gas valve was closed when the burner was idle. When the burner started, the gas valve opened and the spark was used to light the gas. The system thus gives intermittent gas-electric ignition and uses no gas with the burner idle.

There might have been trouble related to failure of the spark to light the gas dependably, and to remedy this a service man switched to high-low gas ignition (the same thing as an expanding gas pilot) simply by opening a bypass valve in the solenoid gas valve. Reasoning that there was no harm in this, he left the spark transformer working.

You'll have to decide whether to try to save gas by cutting out the pilot that burns continually, or whether to leave the ignition system arranged as you found it. If you switch the job back to gas-electric ignition, make certain you do not get it into ignition failure trouble.

* * *

Q. Reading your magazine because I am in charge of a laundry power plant using oil, I notice an item about economizing by taking the heat from warm or hot waste water and putting this heat into otherwise cold water being fed to the hot water tanks. Your mention of a preheat tank and tank-type indirect heater, which is a new idea to me, is good because often great amounts of hot water are being wasted when no cold water is being drawn. All this brings up a question in my mind for years but never answered. Do you gain more by keeping the very hot waste water separate and using it for preheating cold water than by letting hot and cold water mix and chilling all the waste? Assume in either case you chill everything to the same temperature, say down to 80° for example.

B.M.S., Brooklyn.

A. If all the waste water is chilled to the same temperature, 80° for example as you suggest, it does not matter if the warm and hot waste water is kept separate or is mixed. If you chill 5,000 gallons of 160° water to 80° as one operation, and chill 5,000 gallons of 100° water to 80°, you gain precisely the fuel economy you would gain by first mixing the 80° and 160° water and then chilling it to 80°. However, keeping the hot water separate does permit the use of smaller size heat exchangers to gain

CLEAVER-BROOKS HEV-E-OIL BURNERS

THE DEALER-DISTRIBUTOR SELLING SENSATION OF 1950

Hotels	Schools	Public Housing
Stores	Apartments	Green Houses
Laundries	Churches	Industrial Plants

Say, Mr. Domestic Burner dealer, are you selling to these important Commercial Buyers?

Domestic burner dealers are finding it imperative to supply oil burning equipment to these important commercial buyers —buyers who use over 5,000 gallons of oil a year, or over 40 tons of coal.

The Cleaver-Brooks Hev-E-Oil Burner is designed to burn low cost high heat value No. 5 oil—to burn it efficiently and automatically.

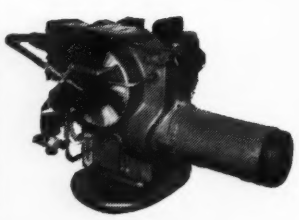
This is your chance to sell quality equipment at a quality price—giving you larger volume and greater profits.

Write TODAY for complete Dealer Distributor information.

CLEAVER-BROOKS COMPANY

363 E. Keefe Ave., Milwaukee 12, Wis.

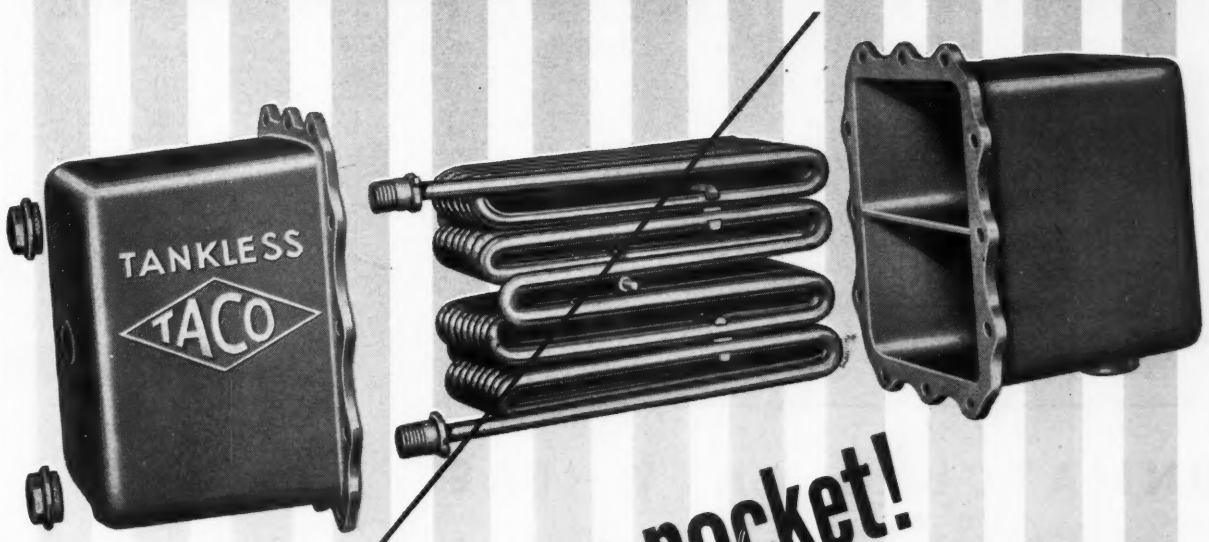
Cleaver-Brooks



HEV-E-OIL BURNER.

USING LOW-COST NO. 5 OIL

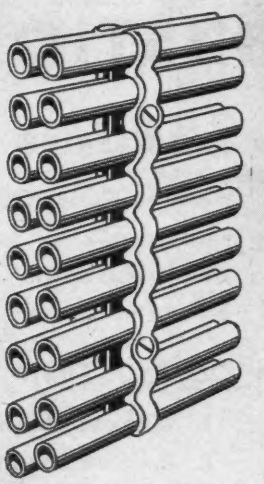
REDESIGNED TANKLESS TACOS



put money in your pocket!

REMOVABLE COPPER COIL

Easy cleaning because shell opens easily *without breaking piping connections.* Domestic water touches only bronze or copper which can't corrode or rust away. More protection for your pocketbook.



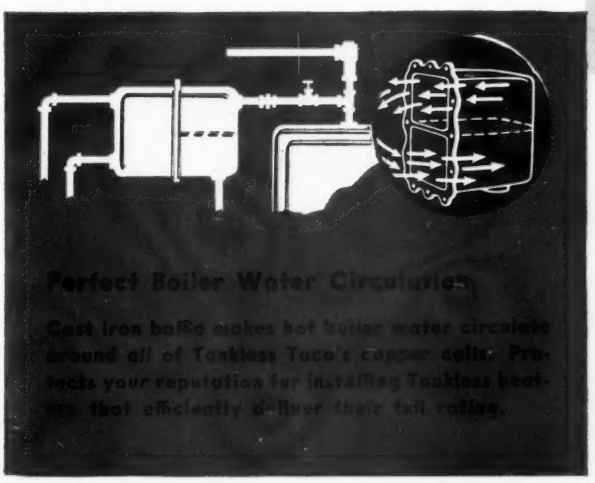
CAST IRON CONSTRUCTION

Heavy cast iron shell will last your lifetime. No rust-outs to create costly service calls or customer ill will. First cost is your last cost.

RIGID COIL CONSTRUCTION

No rattling.

Copper tubing is held rigidly apart by bronze separators. No vibration to weaken tubes. No rubbing together to give you expensive leaks and service calls.



Perfect Boiler Water Circulation

Cast iron baffle makes hot boiler water circulate around all of Tankless Taco's copper coils. Protects your reputation for installing Tankless heaters that efficiently deliver their full rating.

Better Heating - Better with Taco

TACO-ABBOTT SYSTEM Taco

TACO HEATERS, INC. **137 South St., Providence 3, R. I.**

the same results. If you are using only one heat exchanger of limited size, to feed it only exceedingly hot water may gain a definite economic advantage.

* * *

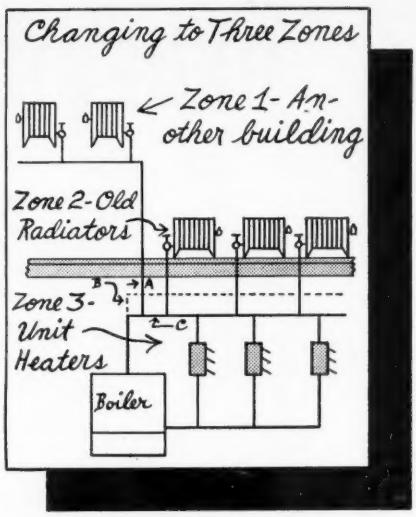
Q. Isn't it easy to make three zones for a large steam heataing plant, one-pipe type?

Zone #1 in my drawing is a new building with concealed radiators, and the zone valve could be at "A." Zone #2 has old cast-iron radiators, to be given steam by a new steam main I show as a dotted line, and the zone valve would be at "B." Zone #3 has new unit heaters for stores and storage rooms, and the zone valve would be at "C."

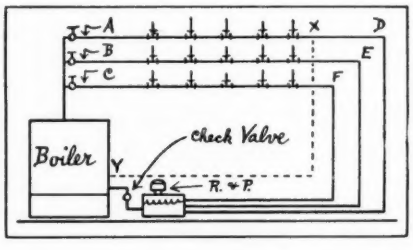
I say we need simply to install the three zone valves, same size as the steam mains, and also install the new steam main shown dotted. My silent partner is making plenty of noise, telling me to lay off because things are more complicated than I dream of. He says more than pipefitter's knowledge is needed. What do you think of my plan?

W. T. S., Aurora, Ill.

A. Your partner is right in that your plan does not go far enough, though it is not bad as far as you've gone with it.



In our small drawing, for example, you can't close valve A, B, or C while there is steam pressure on the boiler, if line X-Y connects the ends of all three steam mains to the boiler. Close valve A, for example, and with five pounds steam pressure on the boiler the boiler water will be driven backwards through the return line into the supply main and radiators of Zone A.



One easy way out of this is to install in the boiler room the closed condensate receiver and pump which we show as R. & P. This has quick vents of ample capacity. The returns leading to it need check valves or traps suitable for this, or other arrangements to prevent water or steam from backing up out of the receiver to points D, E, and F. Or you can use an open condensate receiver, and use steam traps on the three return lines to prevent steam from blowing into the returns from the open receiver. Started and stopped by a float switch that is part of the receiver, the condensate pump serves to develop the pressure needed to force the condensate into the boiler.

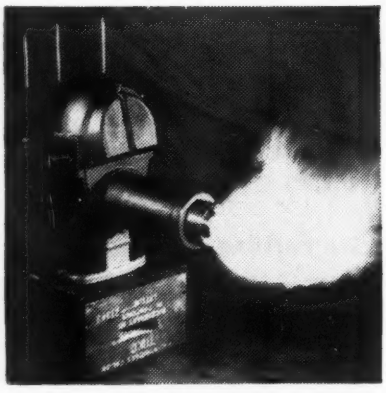
You need help from a heating engineer or a factory representative of a manufacturer of specialties for steam

UNMATCHED ANYWHERE

Compare!

INSIST ON THE ULTIMATE—

in ENGINEERING and COMBUSTION



• ENGINEERING

Here the COMMODORE balances pencils to demonstrate vibrationless operation . . . while burning in open air.

• COMBUSTION

1. Without aid of firebox.
2. Ignition cut-off.
3. Normal flame retained.

Beckett

COMMODORE Oil Burners

Sixteen U.S. and Foreign Patents prove COMMODORE principles must be different.

Join the swing to COMMODORE. 350% increase in 1949.—Sold Coast to Coast.

R. W. BECKETT CORP., ELYRIA, OHIO

Two Valves In One!

THRUSH FLOW CONTROL VALVE

Controls Flow

AND ELIMINATES AIR

FROM HOT WATER HEATING SYSTEM

Brass vent tube separates air rising from boiler water. Air passes up outside of tube and vents into pressure tank automatically. Water passes up inside tube.

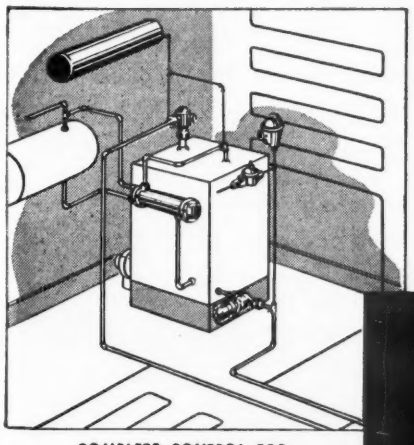
THE NEW IMPROVED Thrush Flow Control Valve is really two valves for the price of one because it provides both flow control and air elimination without any extra "air-tube" fitting. It also takes the place of an elbow in the flow riser. No other flow control valve has all these outstanding valve features. Get the facts now.

THRUSH

forced circulating

HOT WATER

RADIANT HEAT



COMPLETE CONTROL FOR AUTOMATIC HOT WATER HEAT

Highest boiler temperature occurs when the Flow Control Valve is closed. Air and gases which are liberated as the water is heated, vent directly into the pressure tank. Water which passes into the flow main, is always free of air. Result—greater heating efficiency—more uniform heat. You save material cost, save installation time, and reduce inventory requirements by specifying Thrush "T" Flow Control Valves. (They are also available without tube.) Ask your wholesaler for more information today or write Dept. C-7

H. A. THRUSH AND COMPANY

PERU, INDIANA

MANUFACTURER OF HOT WATER HEATING EQUIPMENT FOR MORE THAN A QUARTER CENTURY

heating plants. As you can obtain expert help at no-charge from a manufacturer, there's no reason, however, why you should not go ahead with the job.

* * *

Q. How big a boiler do we need to hook to a 800 gal. hot water tank serving 62 apartments and eight stores, including a drug store serving counter meals and a five-barber barber shop?

J. B. R., Baltimore.

A. We cannot tell from the data you give if the tank is undersize, of the proper size for the hot water requirements, or oversize. Important factors include the type apartments, number of occupants of the apartments, and number of meals served daily in the drug store. We judge it improbable, however, that the tank is oversize.

If you believe the tank is not undersize, obtain a boiler which when fired 2.25 gph will produce a stack temperature no higher than 600°, and fire it 2.25 gph. For a tank considerably undersize, a boiler fired up to 3.5 gph may be needed. To put it on another basis, between 225,000 minimum and 350,000 maximum Btu's per hour will be needed from the boiler.

* * *

Q. Observing different engineers testing motor loads of low pressure and pressure gun burners, I see a stroboscope used apparently to gain instantly an idea of whether or not the motor is overloaded. Second, I know tests of the maximum temperatures of these motors are used to find out how much load the motors should handle continuously. The two things are confusing and an explanation would be greatly appreciated.

C. E. K., Chicago.

A. The test you list second comes first. The temperature rise test indicates the maximum load the motor can handle continuously according to the motor performance standards which apply. With the motor handling this load, its rpm can be checked using a tachometer or a stroboscopic speed indicator of the type you mention. Knowing, for example, that a certain motor slows down to 1720 rpm when handling the maximum load that should be put on it, an engineer checking its speed would know instantly that it is overloaded when it is slowed down to, say, 1650 rpm.

* * *

Q. What causes spark points to collect carbon, shorting the spark and once even causing a puff? Only one of the hundred-odd burners we service does this. We've got the owner reaching into the firebox and brushing off the spark points with a whiskbroom every so often to keep the burner running, but he shouldn't have to do that!

I. D. M., Scranton, Pa.

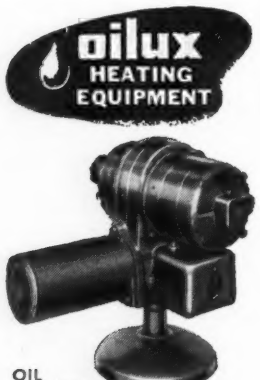
A. Poor burner design can cause a tendency for the spark points to collect carbon, but chances are 99 out of 100 that in this case you simply are setting the spark points too close to the oil spray. Install a new nozzle to eliminate the possibility that improper spraying is causing the trouble, and test to find out if the spark won't light the oil properly with the spark points at least ¼" clear of the oil spray. Use a flame mirror to make certain that with the burner running none of the spray from the nozzle is striking the spark points. Set the points precisely as recommended by the manufacturer of the burner.

oilux HEATING EQUIPMENT

THE OIL DISTRIBUTOR'S HIGHEST PROFIT LINE OF FINEST QUALITY HEATING EQUIPMENT

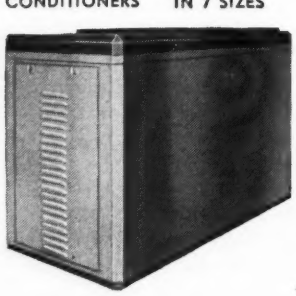
Hydro-Lux water equipment

(and Hydro-Lux Pumps, Water Systems, Softeners and Water Heaters)



OIL BURNERS CAPACITIES TO 12 GAL.

OIL-FIRED WINTER CONDITIONERS 115,000 TO 550,000 BTU OUTPUT IN 7 SIZES



OIL-FIRED HiBoy WINTER CONDITIONERS 75,000 90,000 & 115,000 BTU OUTPUT

EACH INSTALLATION SELLS ANOTHER

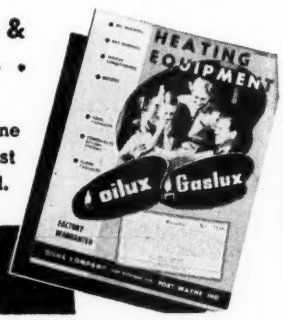
You'll get more "easy" sales with this all-season line of water and heating equipment. You'll get more competitive bid jobs with full profit because you can compete with "rough" competition, yet make a full profit. Home water equipment, under the advertised HYDRO-LUX name, is yours to sell for added profits. Ask for HYDROLUX catalog and prices.

10,000,000 Oilux Ads Showing in 1950 . . .

National magazine and newspaper advertising builds acceptance. Oilux supplies you local advertising and display service, and literature. Use it and profit as never before.

Get Your Catalog & Price List Today . . .

Don't wait. Send for Oilux catalog today. Examine the line and be ready for the greatest season you've ever experienced. Write today.

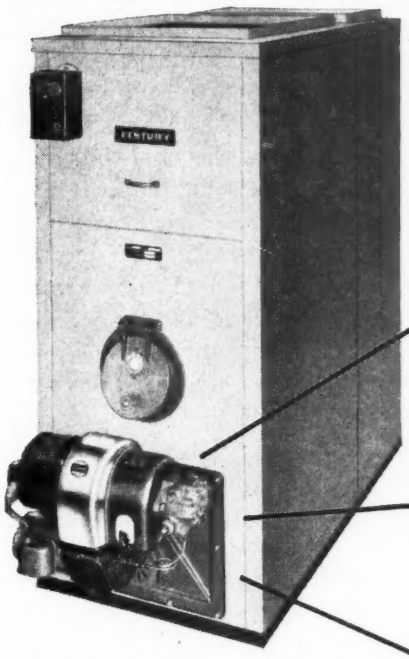


OILUX CO. 2200 DWENGER AVENUE FORT WAYNE 4, INDIANA

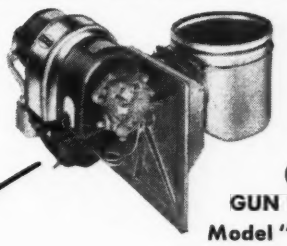
SELL CENTURY

YEARS OF SERVICE

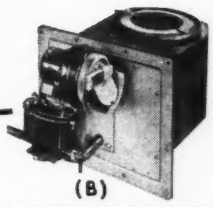
FULLY AUTOMATIC HEATING EQUIPMENT FOR GREATER CUSTOMER SATISFACTION AND HEATING PROFITS!



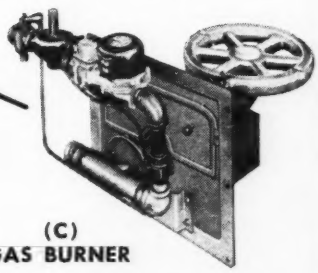
OIL OR GAS-FIRED



(A)
GUN BURNER
Model "L" or "O"



(B)
VAPORIZING BURNER



(C)
GAS BURNER

CONVERTIBLE 3 WAYS!

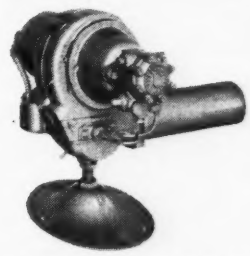
The new, low-cost, Century "Convertible" can be fired by any one of three different types of burners shown at right. Easy to install. Ideal for housing projects or change-overs of present heating equipment.

(A) **With Gun Type Oil Burner**—100,000, 130,000 or 170,000 B.T.U. (Bonnet Rating).

(B) **With Vaporizing Oil Burner**—60,000* or 80,000 B.T.U. (Bonnet Rating).

(C) **With Gas Burner**—60,000*, 100,000, 140,000, 180,000 B.T.U. Input.

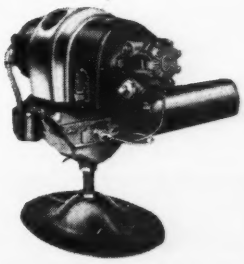
*HIBOY or Utility Model. Others, LOBOY or Basement Models



CENTURY MODEL "L" SERIES
CONVERSION *OIL* BURNERS

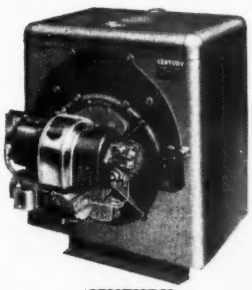
L1C—Capacity ¾ to 2 G.P.H.
L2C—Capacity 1½ to 4 G.P.H.

Dual Ignition—2-Stage Pump
L3C—Capacity 5 to 10 G.P.H.
L4C—Capacity 10 to 20 G.P.H.



CENTURY MODEL "O" SERIES
Quiet—Cushion-Cradled
CONVERSION *OIL* BURNERS

01—Capacity ¾ to 2 G.P.H.
02—Capacity 1½ to 5 G.P.H.



CENTURY
"MIDGET POWERHOUSE"

Hot Water Boiler-Burner Unit 380, 560 and 740 sq. ft. radiation.

As Domestic Hot Water Heater, 125 to 250 G.P.H. Recovery Rate

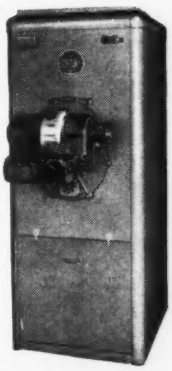
Century "Crescent Super Heater" Winter Air Conditioners, the only Automatic Oil Furnaces on the market that have these TWO Important Features

Famous "Crescent Super Heater"—extracts maximum heat from every drop of oil.

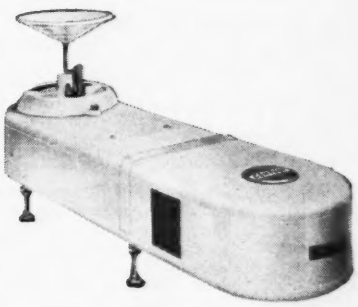
Quiet, Cushion-Cradled Burner—burns any type of residential heating oil. Filtered, forced air circulation...means clean, uniform heating.

Green Baked Enamel Finish

Loboy (basement) Model: 105,000, 135,000, 170,000, 230,000, 280,000 and 380,000 B.T.U. (Bonnet Rating).



Hiboy (utility) Model: 85,000 and 135,000 B.T.U. (Bonnet Rating).



CENTURY MODEL "G" SERIES
CONVERSION *GAS* BURNERS

G150—Input Min. 87,000; Max. 153,000
G250—Input Min. 145,000; Max. 249,000

MADE BY CENTURY ENGINEERING CORPORATION
CEDAR RAPIDS, IOWA

Manufacturers of High Quality Automatic Heating Equipment for More Than 25 Years

Everyday Snags

Gph Rate Problem

Asked to give his price on a burner for firing a commercial size boiler, a burner dealer telephoned the boiler manufacturer for data on the firing rate needed for the particular size and model boiler. He was told the boiler can be connected to a load of 4,800 sq. ft. of standing steam radiation, and should not be fired below 25 gph.

After he had given his price on a burner installation good for up to 30 gph, this dealer learned that his well-informed competitor was planning to use a 15 gph burner, firing about 10 gph, to carry the load.

Checking further, he found out that the building was heated by 70 tons of coal a year, and had a total boiler load of 2,400 sq. ft. of standing steam radiation.

A look through some back issues of FO&OH uncovered this thumb rule: As many gallons of oil are used per day during January, the coldest month, as tons of coal are needed yearly to heat the building. This applies closely where the yearly degree-day load runs between about 4,500 and 6,500, and fits the New York area.

With the job using about 70 gallons of oil a day in January, the dealer reasoned, certainly a firing rate of 10 gph would be sufficient. Besides, why fire harder than 10 gph for a standing steam radiation load of only 2,400 sq. ft.?

He did not get the job, and perhaps he might not have gotten it if he'd figured on 10 gph in the first place, but the dealer says he is still cussing out the man who answered the phone in the office of the boiler manufacturer and said the boiler should not be fired at a rate lower than 25 gph.

Winter Hot Water

After he had sold a horizontal rotary cup burner to heat this school building in which little hot water was needed, a burner dealer was asked if the 150-gallon hot water tank would heat the same in winter with the boiler oil-fired as it used to heat with the boiler coal-fired.

Checking, he found that a fairly large indirect water heater, output 200 gallons in three hours, was connected under the waterline to the back section of the 12-section boiler. The boiler was of twin-section or pork chop type, so the dealer figured the indirect water heater was connected not to 1/12th of the boiler sections, but to 1/24th. He took into consideration also that the bed of burning coal was in contact with the back section of the boiler with the boiler coal fired, but that with oil firing the back section would receive much less heat since the firebox was mostly in the front part of the boiler and had a high back wall and a rear-wall corbel to gain flame turbulence.

Taking into consideration all these factors, the dealer concluded that with the boiler oil-fired the hot water tank would heat more poorly in winter than it did with the boiler coal-fired, but no trouble would come of this because a potstove water heater could be fired up when considerable hot water was needed occasionally. To heat the tank properly in winter with the big boiler oil-fired, said the dealer, it would be nec-

SUBSTANTIAL PROFITS *for* YOU— *Cleaning Furnaces with the* GRAND RAPIDS *De Luxe* FURNACE CLEANER

You can put furnace cleaning on a money making basis by using a Grand Rapids Furnace Cleaner. High velocity suction scoops up all deposits of soot, ashes and carbon, cleaning the heating plant and re-establishing full efficiency. Special attachments clean flues, radiators, right angle turns and other hard-to-reach areas. The job is done quickly and completely. Customers are highly satisfied.

The Grand Rapids DeLuxe Furnace Cleaner is also your "in" for more than cleaning profits. By checking over and inspecting the heating plant as you clean it you are in a position to make timely recommendations for new equipment or repairs. This means better service for customers . . . more profits for you.

Write for complete information and prices today.

DOYLE VACUUM CLEANER CO.

233 Stevens St., S.W. Grand Rapids 7, Mich.

BOOK SHELF

1. WARM AIR HEATING & WINTER AIR CONDITIONING

Here is a timely manual covering the design, installation, adjustment and servicing of all types of warm air heating and winter air conditioning systems. Written in clear, non-technical language, it explains what the designer, contractor, estimator, installer, serviceman, or user needs to know to handle everyday heating problems. 310 pages, illustrated. By John W. Norris. **$6.50**

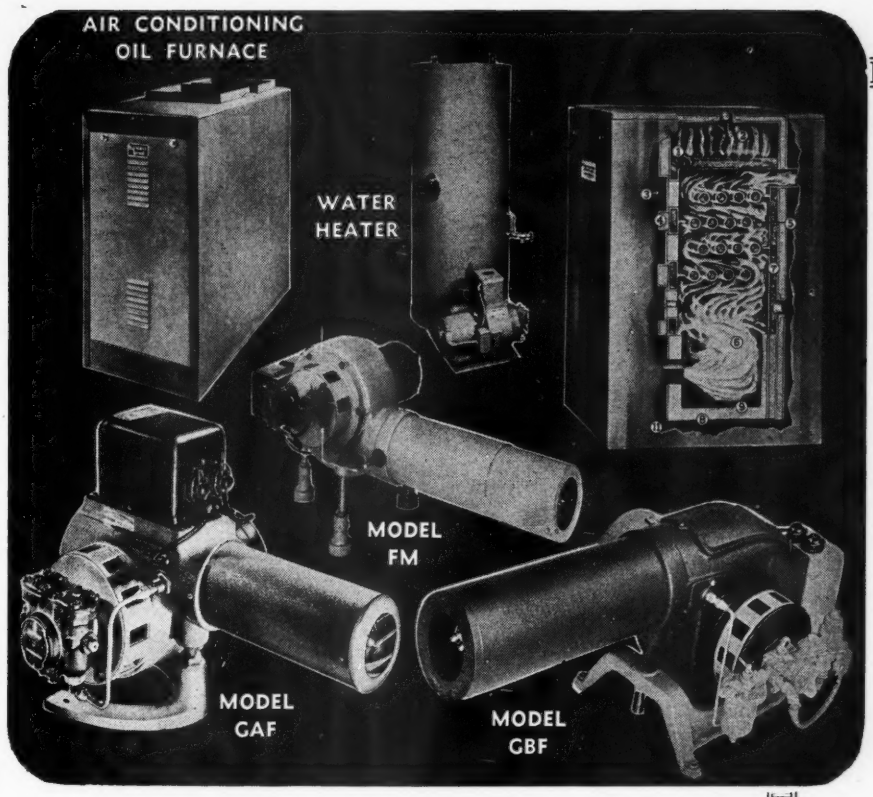
2. ESTIMATING MANUAL FOR HEATING AND PIPING SYSTEMS

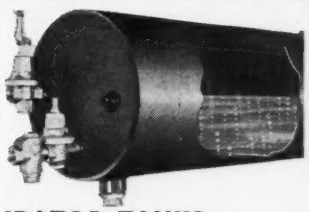
The aim of this manual is to provide practical labor data to those who are concerned with estimating the cost of assembling, fabricating, installing the material required for the construction of heating and piping systems in the building industry.

Much of the material presented in the manual is based upon the experience of others engaged in the heating and piping industry, many of whom have expressed their knowledge of the subject through the medium of articles published in various trade papers and otherwise made available over a period of years. 112 pages. Contains diagrams and many tables. By Harry A. Erickson. **$3.**

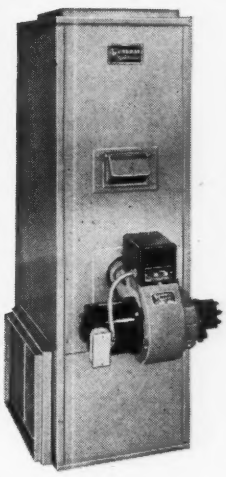
Because of the thousands of small orders we receive we ask that cash, stamps, money orders or checks be sent with all orders.

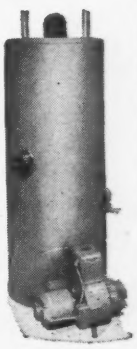
HEATING PUBLISHERS, Inc.
232 Madison Ave., New York 16, N. Y.





DE-AIRATOR TANKS





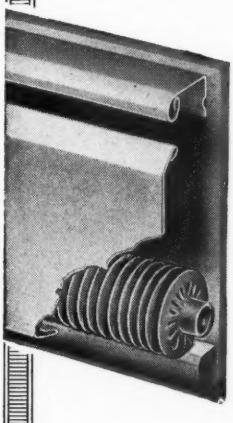
J-SERIES
BOILER-
BURNER
UNIT

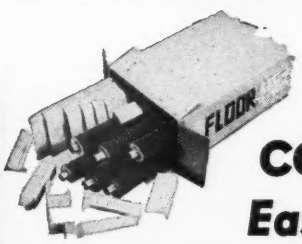
HIGHBOY
WARM AIR CONDITIONER

Get This Profit Picture!

THE COMPLETE GENERAL AUTOMATIC LINE

We will be glad to send you details on the line built to *sell*—built to *satisfy* both dealers and their customers. Ask for our down-to-earth dealer program.



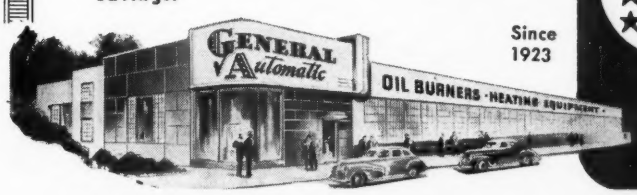


ONE COMPLETE Easy-to-Sell HEATING PACKAGE

floorlevel

BASEBOARD HOT WATER RADIATION

Easy to store, sell and install. Includes de-airator tank, circulator, flow control valve, boiler-burner unit . . . at *real* savings.



Since
1923

CONVERSION OIL BURNERS

1 to 20 gal. capacity. Domestic and industrial. Long proven installations show positive selling advantages.

BOILER-BURNER UNITS

The all steel boiler-burner T-Series (ASME approved) is famous for fuel savings, beauty and long life. Quality construction throughout. J-Series is ideal for small homes from 200 to 650 sq. ft. H. W. or commercial hot water.

WARM AIR CONDITIONERS

Highboy and Lowboy units from 85,000 to 200,000 BTU meet the needs of any type or size of home installation.

GENERAL Automatic

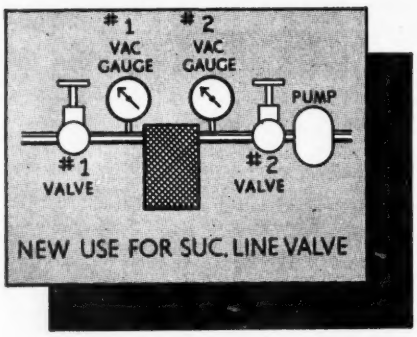
General Automatic Products Corp., 2300 Sinclair Lane, Baltimore 13, Md.

essary to put a manifold on one side of the boiler. This would connect three front sections of the boiler to the indirect water heater.

"You are lucky the hot water tank is oversize for the hot water requirements," the dealer pointed out to the school authorities, "because with hand-fired coal the boiler water simmered every minute of the day, even with the fire banked. With oilfiring, the flow of heat to the sections stops soon after the burner turns off, and any boiler sections connected to the water heater will chill quickly when the tank is cold."

Carbon in Oil Tank

This industrial boiler room was put out of operation a few years ago by an accumulation of carbon particles, described by the service man as a first cousin to powdered soft coal, in the oil storage tank. Applying a vacuum gauge to a struggling oil pump, the service man discovered it was developing 22" of vacuum in its futile efforts to bring enough oil through the suction line. A gauge stick seemed to hit bottom in the oil tank, but then could be driven down



NEW USE FOR SUC. LINE VALVE

six inches farther by hammering on it. The service man says the stuff in the tank was shovelled out, not pumped out.

The rig shown in the diagram, consisting of a much-used arrangement of a vacuum gauge on each side of the suction line strainer, was then installed as an improvement. It shows how much vacuum the pump develops in drawing oil from the tank, and also tells when the strainer needs cleaning.

Recently the #1 vacuum gauge started showing higher and higher readings, climbing from the 7" or so to about 15" within one month. Deciding that the storage tank again was collecting a bottom layer of something not fueloil, the service man developed a new use for the rig and the suction line valve. With the pump running, he closed down valve #1 until the vacuum gauges (they both gave the same reading, of course) showed 25". Then he opened the valve as fast as he could. The trick seemed to work, for the #1 gauge reading instantly dropped down to its usual 7".

The service man says that using this method to rush oil through the suction line clears away carbon particles piling up in the storage tank where the oil enters the suction line. As he explains it, the usual slow flow of oil to the entrance of the suction line, in the tank, tends to make for eventual blocking of the entrance to the suction line. Using his trick method, he says, rushes oil into the suction line at perhaps three or four times the usual rate of flow, and winds up with the accumulated carbon in the suction line strainer.

He adds that while the trick has worked so far, if it fails in the future to drop a built-up pump vacuum he will try blasting the suction line entrance

ATLANTIC STEEL BOILERS

Scotch-Marine type, three-pass, wet base. Spiral baffles in the heavy-gauge, three-inch fire tubes assure the utmost in heat transfer. Firing chamber is entirely surrounded by water and contains a special high-temperature refractory combustion chamber. De Luxe jacket—attractive hammertone finish.

Sizes from 400 to 3840 sq. ft. steam; 640 to 6144 sq. ft. hot water, E.D.R.

Write for full information today!

S. W. CORNER
24th and BROWN STS.
PHILADELPHIA, PENNA.

ATLANTIC STEEL BOILER COMPANY

BOOK SHELF

INSTALLING THE DOMESTIC OILBURNER

This is the first practical guide on oilburner installation. It contains the most significant articles from FUELOIL & OIL HEAT that cover all phases of installation step by step. It is 8½ by 11 inches and contains 64 pages. Illustrated with numerous diagrams, charts and photos.

$1.

OILHEATING SNAGS

This book gives the solutions to many of the Everyday Snags that annoy you in installation and service. We've been working on them for years. They are all simple and practical answers to the most common goat-getters on jobs. It's an 8½ by 11 inch book of 64 pages.

$1.

Because of the thousands of small orders we receive we ask that cash, stamps, money orders or checks be sent with all orders.

HEATING PUBLISHERS, Inc.
232 Madison Ave. New York 16, N. Y.

SAVE TIME...SAVE MONEY...

BUY 'EM by the CARTON

MONCRIEF SUREFIT FITTINGS NOW CARTON PACKED at NO EXTRA COST to you

FOR CONVENIENCE IN
SHIPPING • HANDLING
WAREHOUSING • SELLING

Write for a copy of the NEW, complete catalog of Moncrief SUREFIT Fittings for Gravity and Forced air heating installations.

Write for your copy of Air Distributing Institute "More Profits—More Sales" from Standardized Fittings

THE HENRY FURNACE COMPANY
Medina, Ohio

HEATING AND AIR CONDITIONING UNITS — MONCRIEF — FURNACE PIPE AND FITTINGS

clear using compressed air. In fact, he'll try lots of things before again pumping all the oil out of the tank and shovelling out the solid material that's left.

Testing for Tank Leaks

How to settle the worries of a good fueloil customer who had kept on saying for five years that he was afraid his 1,500-gallon tank, installed in 1932, seemed to be leaking?

This fueloil dealer waited until summer, when the burner would use only a gallon or two of oil a day for water heating, then installed a 55-gallon oil drum in the basement to feed oil to the burner. With no oil being used from it, the outside tank was measured at the beginning and end of a 30-day period. The oil level remained the same; no leak.

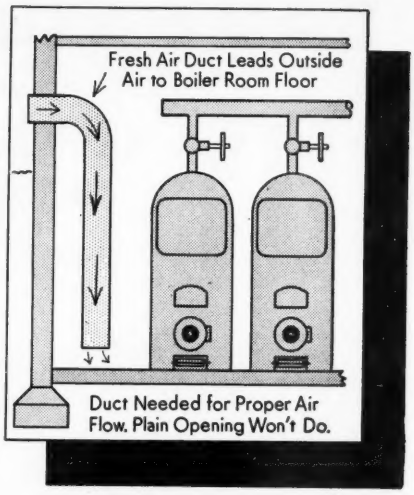
Air For Oilburners

Outside air may be needed in a commercial or industrial boiler room, particularly one that is relatively small, tightly constructed, or mainly below ground level. Facing problems related to smoke, insufficient air for the firing rate that matches maximum load, poor draft, or fires seemingly changing by themselves, a combustion engineer should always check on the possibility that additional outside air is needed in such a boiler room.

A simple air opening in an outside wall, even one of ample size, may be inadequate if it is located high in the boiler room. The tendency of hot air to rise out of the boiler room may defeat the purpose of such an air opening. Instead of cold, outside air flowing into the opening, hot air from the boiler room may flow out of it.

One method for overcoming this difficulty is shown in the diagram. A fresh air duct leads the outside air down in the boiler room; the duct ends a foot or two from the floor level. Not shown in the diagram is the screening needed to keep out insects, or the hood to keep out rain and snow.

One school of thought is to make the duct area equal to the chimney area needed by the oilburners; another is to use duct area twice the required chimney area. Use judgment in deciding which rule to follow. For example, take



into consideration that more boiler room air should be provided for burners greatly dependent on natural draft than for other burners, and that more boiler room air is needed where air enters the stack to cut the draft than where volume or butterfly dampers in the smoke-hoods or breeching are used to control the stack draft.

Spotlight for Smoke

Throw the beam of a powerful flashlight towards the top of a chimney on

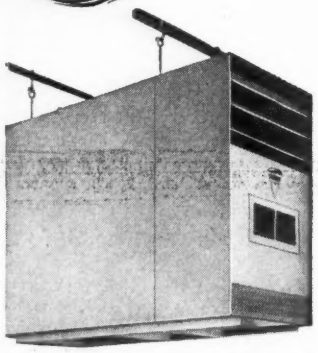
TURB-O-TUBE

LESS MONEY

to BUY,

to INSTALL,

to OPERATE



Ceiling installation for garages, stores, etc. Output up to 150,000 BTU's.

CHECK THESE FEATURES:

1. All models factory assembled — easy installation.
2. Tubes extract heat from flue gases.
3. Built for present day pressure-type burners.
4. Low cost — Inquire from your distributor.

TURB-O-TUBE FURNACE, Inc.

106 Kingsley St. Buffalo 8, N. Y.

CASH IN

ON THE GROWING

Home-Modernizing Market

FROM COAST TO COAST

home modernization is in full swing . . . automatic home heating is at its greatest demand . . . ANCHOR'S sensational new FUEL-MISER Oil Burner is *selling fast.* This ANCHOR sells faster simply because it heats better . . . because it costs less to operate . . . because it's more efficient and extremely quiet . . . because ANCHOR'S FUEL-MISER *gives fuel savings up to 25%!* These are the elements your home-modernization customer wants . . . that's why dealers everywhere have fast turnovers and increased profits. Installation cost is low, too . . . the FUEL MISER is wired at the factory eliminating this operation for you. Write for complete details today:

ANCHOR DIVISION, Dept. SA-4, Stratton & Terstegge Co., Inc., P. O. Box 311, New Albany, Indiana.

Inquiries Invited from Boiler & Furnace Manufacturers

NEW FUEL-MISER ANCHOR OIL BURNER

THE BRIGHTEST STAR OF THEM ALL for the small home

1950 Models BF47 and BF60

KRESNO-STAMM

Ball Flame OIL BURNER

The demand for the Kresno-Stamm "Ball Flame" mechanical draft burner by furnace manufacturers is growing by leaps and bounds—

- ***Because*** **... the small home requiring *less than a gallon* of oil per hour for heating offers great opportunities for big volume sales today and for many seasons to come.**
- ***Because*** **... no other type of oil burner can match this modern, compact burner for low cost, efficient operation, and fuel savings.**
- ***Because*** **... the Kresno-Stamm "Ball Flame" is the outstanding, completely packaged, mechanical draft, small oil burner, especially designed to meet furnace manufacturers' needs.**

The Kresno-Stamm "Ball Flame" is a truly engineered, proven burner, not a makeshift, not experimental. Many thousands are in use all over the world for large and small housing developments and for conversion. Dealers and contractors everywhere have recognized the Kresno-Stamm "Ball Flame" Burner as "standard," and look to manufacturers to incorporate them in the small furnaces they buy.

Let us tell you about the "Ball Flame." Write today.

Kresno-Stamm "Ball Flame" Oil Burners are patented in U.S.A., Canada and many foreign countries.

Be Sure to Visit Our Exhibit at the First United States International Trade Fair, Chicago — August 7 to 20.

KRESNO-STAMM
Since 1927

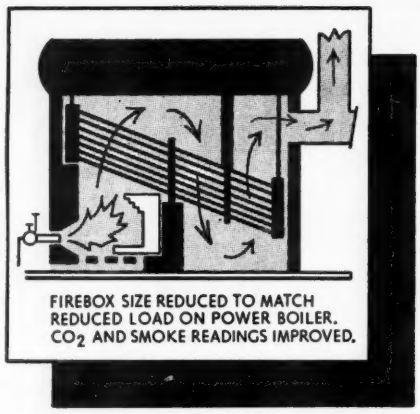
KRESNO-STAMM MANUFACTURING CO., (America) Inc.
General Offices and Plant: PALISADES PARK, N. J.

Canadian Affiliate—Kresno-Stamm Mfg. Co. (Canada) Ltd. • 1452 Drummond St., Montreal 25, P. Q.

a dark night, and you'll find it shows up a trace of smoke very nicely. An industrial boiler room has a spotlight, easily turned on from inside by a fireman, to light up the gases coming from the chimney. A mirror mounted outside the window, after the fashion of a mirror on the door of a car but larger, gives the fireman a look at the top of the stack from inside the building. The rig gave reassurance that the smoke indicator was working properly, when this was first installed, but later proved to be less reliable than the smoke indicator. Wind blowing the wrong way for smoke to be seen in the mirror was the reason.

Temporary Small Firebox

The chief engineer in charge of this industrial boiler room thought he'd be happy forever after his boss had bought him the indicating and recording instruments he'd been begging for for five years. The instruments covered draft, smoke, stack temperature, and CO_2. But the happiness, it turned out after all the instruments were installed and working properly, covered only four



FIREBOX SIZE REDUCED TO MATCH REDUCED LOAD ON POWER BOILER. CO_2 AND SMOKE READINGS IMPROVED.

months out of each year. Excellent CO_2 and smoke readings could be obtained only during the four months the two boilers carried high loads. The other eight months of the year, particularly the four months of these that included exceedingly light loads, were made up of CO_2 and smoke readings which the chief engineer called "plain lousey" at times when he could restrain himself.

Paradise four months a year not being enough for him, the engineer worked out a solution to the problem. For the months of light load, he reduces the sizes of the fireboxes, cutting the firebox size of one boiler by about 25% and the other by about 45%. Made of light, insulating firebrick, the walls installed just for light loads can be removed easily without damaging the costly fireboxes with which the boilers were equipped originally, says the engineer. Also a few tricks can be used to prevent the temporary brick from being cemented in place tightly, he explains, with the result that the same temporary brick can be used year after year.

Excellent readings now are obtained from the combustion instruments year round, and the frequent sooting of the boilers' water tubes in summer has been eliminated. The engineer is making the most of the opportunity he has, in his frequent changing of the firebox sizes, to ascertain exactly which sizes are best for the reduced loads.

Using Waste Steam

As in many industrial boiler rooms, in this one there was an electric fueloil pump that seemed to be there only for starting up cold boilers. The piston-type steam pump worked splendidly, even when developing the 200 lbs. oil pres-

Solenoid
STAINLESS STEEL
Valves
FOR OIL BURNERS

For increased customer satisfaction, always install Skinner Valves on new burners and as replacements. Soft synthetic inserts assure long life without leakage. Spring loading positively opens or closes valve in any position. Coils impregnated to withstand moisture. Available for drip eliminator, cut-off, pressure relief, gas ignition, shut-off, shut-off metering, shut-off with manually adjustable by-pass. All models for continuous or intermittent duty.

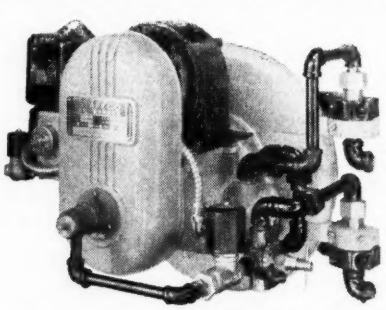
New bulletin No. 492 contains complete data and prices. Write for FREE copy.

Skinner ELECTRIC VALVE DIV.
THE SKINNER CHUCK COMPANY
141 Belden Ave., Norwalk, Conn.

STAFFCO
INDUSTRIAL BURNERS
Are Easy to Install!

Increase your profits by selling heavy oil commercial and industrial burners! Fuel Oil Dealers! Heavy oil is the quickest way to build up your gallonage! Practical, factory engineering assures profitable installations and satisfied customers!

No. 5 and No. 6 oil

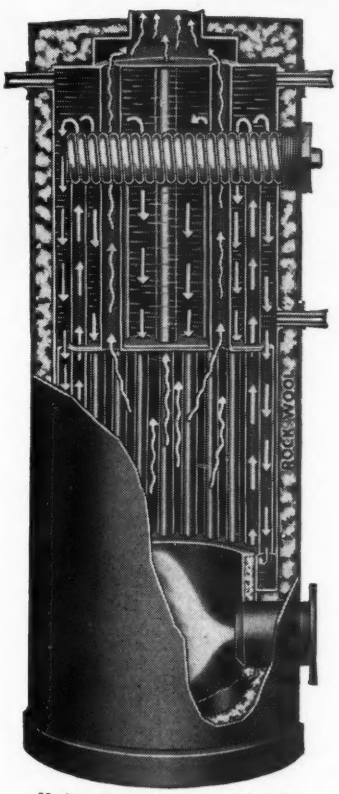


4 to 165 g.p.h.

STAFFCO ENGINEERING COMPANY
6600 South Austin Avenue Chicago 38, Illinois
Fred Ravnsbeck, Chief Engineer
WRITE FOR COMPLETE INFORMATION

Shephard

OIL FIRED BOILER BURNER UNITS
DOMESTIC WATER HEATERS



Units For Kaalant Heat

Featuring

The Original "Percolating" System

COMPARE THESE FEATURES

- ASME Code Construction
- Removable Screw Type Fittings
- Heavy Boiler Plate Construction
- Two Inch Rock Wool Insulation To Eliminate Stand By Loss
- Hydrostatic Tested—300 Lbs.
- All Copper Coil Tankless Heater For Domestic Hot Water
- Six Different Sizes
- Standard Size Fittings

Check Our Prices First Before Buying

Maybe You Qualify as an Exclusive Dealer or Jobber In Your Territory.

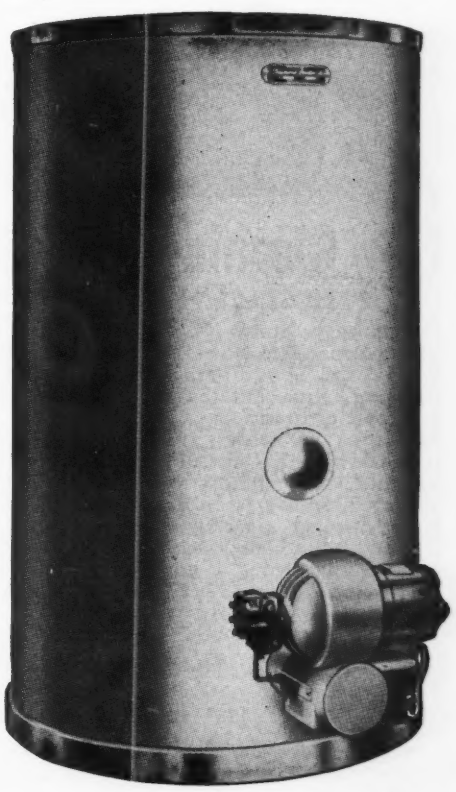
Make Your PROFITS for 1950 with the Shephard line of Boilers—Water Heaters—Burners

Write or Wire Today

Shephard Heater Co., Inc.

951 Sycamore St.

Terre Haute, Indiana

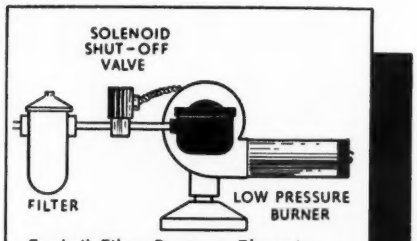


sure that was best for the particular burners. The steam pump gave off considerable exhaust steam, heat-rich and valuable in the heating season for use in a low pressure heating system connected to the boiler room, but which was wasted in summer. The big blast of exhaust steam jetting skywards from the roof of the boiler house all summer spelled waste of heat which the chief engineer yearned to eliminate. A thorough check-up showed that the feed water heater could use no more exhaust steam. Water was being fed to the boilers at almost the temperature of the exhaust steam. More checking brought out that exhaust steam could be used (1) for fueloil preheaters which raised the oil temperature to almost exhaust steam temperature, then passed the oil on to high pressure steam heaters for the additional heating needed and which thus took most the load off the installed high pressure steam oil preheaters, and (2) for heating the water used in the factory for process work. The hot water needed for process work was being provided, it developed, by high pressure steam coils installed as hastily and inexpensively as possible. The new arrangement used all the exhaust steam. It had the feature that steam from the boilers, at high pressure, would automatically be cut in for water heating at times when there was insufficient exhaust steam to heat the water properly. This feature often is used for low pressure heating systems that use exhaust steam when this is available; if the exhaust steam pressure in such systems drops below five pounds, for example, live steam automatically feeds in and keeps the heating system pressure at five pounds.

It's wise, in planning the oil-firing of high pressure boilers, to lean towards the use of electrically-driven auxiliary equipment where the use of steam-driven equipment will lead to waste of the exhaust steam.

Keep Oil Valve Clean

Many men who declare they are experts at servicing all types of burners know this; the nice thing about some low-pressure gun burners is that you can end leaky shut-off valve trouble, quickly and without using special parts that may be hard to get, simply by installing a suitable solenoid shut-off valve in the feed line. For certain burners fed by gravity the work is extremely simple. It is more complicated but can be

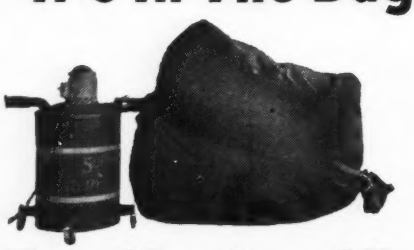


Fueloil Filter Protects Electric Valve Added to Gravity-Feed Job

done on certain jobs which have burner-driven pumps to bring oil in from outside tanks, though with some pump-equipped burners there are no complications.

Used properly, this service remedy is excellent and permanent. The shut-off valve in the burner need not be repaired. Use a solenoid valve undoubtedly suitable for this application; simply wire it in parallel with the burner motor.

"It's In The Bag"



The SUPER Secret

For Cleaning Oil Burners

FREE SALES PLAN — FREE TRIAL

It's an easy, quick job to vacuum clean oil burners with a Super Red Streak Furnace Cleaner. The Super Special Oil Soot Filter Bag is constructed to avoid clogging, thus eliminating the back pressure that destroys ordinary bags.
Any type of heating plant, hot or cold, is easily cleaned with a Super. Chimney cleaning tools are included in standard equipment. The special oil burner filter bag is an extra at small additional cost. Super furnace cleaning gets you into the basement. Opens the door to sale of new plants, parts, repairs as well as earning a good profit on cleaning alone. Write today for the FREE "SUPER" Sales Plan to increase your volume.
You can try a Super 5 days FREE—ask about it.

The National Super Service Company, Inc.
1951 N. 12th Street, Toledo 2, Ohio

SUPER SUCTION
SINCE 1911
"THE DRAFT HORSE OF POWER SUCTION CLEANERS"

MAR-COIL SILENCERS
PREVENT WATER HAMMER!

MAR-COIL SILENCERS

SIZE	Cubic Inches of Cushion
½" Type A	9 cu. in.
½" Type B	17 cu. in.
¾" Type C	33 cu. in.
1" Type D	55 cu. in.
1¼" Type E	103 cu. in.

ELIMINATES WATER HAMMER FROM HOT OR COLD WATER LINES!

Eliminate dangerous and annoying water hammer with MAR-COIL silencers. Available in five sizes to correct every job. Install easily in upright position and require no adjustment. Made of all polished brass and copper. For Homes, Apartments and Industry. On Tankless Heaters, Washing Machines, Dishwashers, Pumps, etc. Install as near as possible to the fixture that hammers.

We also make: BOILER STANDS • FUEL OIL TANK GAUGES • TANKLESS HEATERS • TEMPERING VALVES • STEAM MOTORIZED GATE VALVES

MAR-COIL HEATER CO.
200 PATERSON PLANK ROAD, UNION CITY, N. J.

Will this furnace automatically adjust flames to meet varying conditions?

Will this furnace distribute heat evenly from floor-to-ceiling . . . with less than 4-degree variation?

Will this furnace automatically adjust the blower speed as needed?

DO YOU HAVE THE *Answers* . .

WHEN YOUR CUSTOMERS ASK THESE QUESTIONS?

Will this furnace do away with the frigid-leg-zone?

Will this furnace deliver continuous heat circulation rather than on-and-off?

You have the answers all right if you sell the Superfex. And every answer will be, "Yes"! No other line of furnaces offers more completely automatic operation—more accurately controlled heat level—than Superfex. It's the best furnace a customer can buy . . . it's the easiest furnace for you to sell! Only Superfex gives so much comfort, so economically. *We'll be glad to answer your inquiries.*

Superfex
FURNACES
Perfection Stove Company

7195-B-1 Platt Avenue
Cleveland 4, Ohio

A complete line of Winter

Air-Conditioning furnaces—for Gas and Oil

fueloil & oil heat

Don't forget, however, that only clean oil should flow through an automatic shut-off valve. Dirt on the valve seat will keep the valve from closing tightly.

Play safe and install an excellent oil filter in the line that brings oil to the solenoid type shut-off valve. This valve needs protection against sludge, solid dirt, etc., even though the nozzle and other oil-handling parts of the burner may need little or no protection against these.

String Stops Oil Leak

"Sparky'll love this!" starts out a note from a service man.

"Remove the nozzle just so many times from a burner that's got a teenie-eensie one-eighth inch (that the smallest size copper tube you ever saw?) oil line, flared fittings, running from the fuel unit to the nozzle line, and the flare on the copper tubing thins out to almost paper thickness. Especially with an angle type conversion fitting, copper tubing to pipe thread, you may find you can't tighten the flare nut enough to eliminate an oil drip.

"What to do if you haven't a flare tool with you, are 16 miles from anywhere, and want to leave heat on safely until some day you drive by this job again and get the chance to make it right?

"Just undo the flare nut, wrap a bit of string around the flare so it will squeeze up into the flare nut. Tighten the nut again and the fitting will be tight because you gained some space and gave it a new lease on life.

"The string stunt works for compression fittings as well as flare fittings. Remember it when you get in a jam!"

Rotary Hacksaw

Why this happened, the three men working on this job in Brooklyn did not know, but the efforts to use a 2" rotary hacksaw to put an opening in the side of a steel boiler produced only four ruined blades at the end of two hours and a little circle on the boiler about one-fifth the depth necessary to put through the hole.

With only one blade left and no more available from supply houses, the work was stopped for a talk about the difficulty. Perhaps excessive speed of the chuck of the big drill being used caused the teeth to burn off the rotary hacksaw blades. Highly effective cooling of the blade and teeth might help, it was decided. It was plain that if the last blade was ruined like the others in five minutes of trying to make the hole with it, the job would have to be abandoned for the day, and the next day work would start on no more encouraging basis.

The men made a try at drilling the hole while cooling the blade by pouring water on it, one quart after the other from a milk bottle. It worked. The blade went right through the boiler plate. Whereas the other four blades had been ruined, not a tooth being left on them, after the hole had been completed by the fifth, water-cooled blade it seemed as good as new, ready to make six more holes.

◈

BELL & GOSSETT CO., Morton Grove, Ill., in bulletin CL-949 describes B & G Monoflo fittings for forced hot water heating systems.

SILENT KORTH
OIL BURNERS

SILENT KORTH OIL HEAT

NOW DISTRIBUTED EXCLUSIVELY THRU PLUMBING & HEATING JOBBERS

- A SIZE FOR EVERY JOB. CAPACITY .75 TO 20 G.P.H.
- ADAPTOR FLANGES TO FIT BOILER OR FURNACE UNITS
- GE OR OHIO MOTOR
- M-H CONTROLS

SILENT KORTH INSURES YOUR PROFITS
IT IS SERVICE-FREE — IT STAYS SOLD!

Send for our Jobber Sales Plan today

ECKHART MFG. CO., INC.
UNION, NEW JERSEY

Slimmer . . . Trimmer
BROWN
BAYCE-HEET

Protrudes only 1 1/8" from Wall

- Smart looking, protrudes only 1 1/8".
- 645 B.T.U. per lineal foot with 180° water temperature.
- Fins have amazing heat area due to exclusive beading process which provides greater radiation surface and durability.
- 5 ft. standard unit weighs only 12 lbs. . . . requires only 3 simple wall brackets to install. Easily cut to any desired length.
- Closed top and open front prevent streaking wall.
- Removable front for easy cleaning.

Illustrated Brochure 40 on Request

BROWN PRODUCTS COMPANY FOREST HILLS, NEW YORK

De Soto Offers the One and Only

DELUXE DEALERSHIP FRANCHISE

to Five Additional Dealers During 1950

What is it?

De Soto's Deluxe Dealership Franchise is a *cooperative merchandising plan* that offers a positive method of producing all the leads your closing salesmen can use *without advertising* or *canvassing.* This unique plan combines two EXCLUSIVE SELLING TOOLS, offered by no other oilburner manufacturer, plus on-the-spot management consulting service. One of the oil-heating industry's outstanding sales consultants will counsel with you and work with you in developing a selling plan tailored to your individual business and market.

Has it been proven?

Here's what two Deluxe Franchise Dealers say:*

"In 1949 we sold 200 oilburners at a price so low we barely broke even. This year, under De Soto's Merchandising Plan, our sales volume is running approximately 400% ahead of last year. We've stopped cutting prices and are now getting a full legitimate profit on every sale."

"In February of this year, we started under the De Soto Merchandising Plan without a salesman. Our commission sales organization, now numbering several men and still growing, produced $14,000 in May, and we'll finish June with $30,000 billing. We feel that any ambitious dealer can do as well with the De Soto Plan."

*names sent on request.

What are the qualifications?

To obtain one of these five De Soto Deluxe Dealership Franchises, you must be located in a metropolitan city or a community of over 200,000 population. You needn't necessarily be a large volume dealer at present—capacity for growth is the sole requirement in this respect. Write for full information on this valuable franchise.

Our Standard Franchise which is available to dealers of smaller sales potential, includes the prospect development plan and the exclusive De Soto-Dealer sales presentation manual.

Write Today to—

De Soto Oil Burner Corp.

40 N. Penn Street **York, Pennsylvania**

Combustion Chambers

(*Continued from page 65*)

less steels, stating that all steels contain large amounts of iron, small amounts of carbon and manganese. Stainless steel, in addition, contains appreciable amounts of nickel, silicon, molybdenum, columbium, titanium or aluminum. Each type has been developed during the last thirty years for particular applications, including those where the ability to withstand high temperatures is essential.

Quite naturally, Mr. Payson remarked, some of these heat-resistant steels have been selected for use as combustion chambers. They have advantages for this application because:

"1. They are light in weight which makes for ease of assembly, shipping and installation. For contractors and suppliers, it is also important that heat-resistant steel combustion chambers are easier to store.

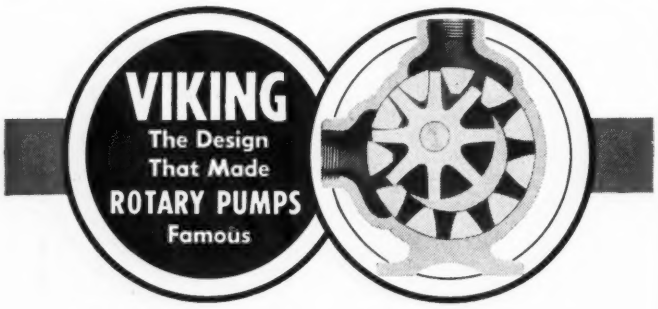
"2. They heat and cool rapidly when the burner goes on and off, which makes for maximum efficiency in operation, and which gives rapid response to the demands of the thermostat, avoiding over-and-under shooting of temperature.

"The only disadvantage . . . is that they are not indestructible under adverse conditions of furnace operation. Unfortunately heat-resistant steels have their limitations."

For one thing, Mr. Payson said, when heated the chambers expand and contract when cooled. Since normal operation of combustion chambers sometimes reaches a temperature of 1600 F., if the steel is not allowed "to expand freely with change in temperature, something has to give, and if the surrounding material does not give, the steel itself will give, that is, it will distort, or crack. For this reason, the steel combustion chamber must not be surrounded by closely packed insulating material, or back-fill. Back-fill is not only unnecessary with steel combustion chambers but it is highly undesirable for two reasons: First, because it prevents the steel from expanding and therefore will cause the steel to push itself out of shape; and second, because insulating material back of the steel will prevent the steel from cooling down rapidly when the burner goes off, and will thus decrease the efficiency of the unit."

About direct impingement of flame against the wall of a stainless steel combustion chamber, Mr. Payson said, "This will cause a hot spot and may cause failure for two reasons. The first reason is that the strength of the heat-resistant steel decreases quite rapidly with increase in temperature above about 1200° F. The steel is approximately twice as strong at 1500° F. as it is at 1700° F. The steel in the hot spot wants to expand much more than the surrounding cooler portion of the chamber. Since the hotter steel is thus restrained from expanding, it becomes subjected to a compressive stress. The hotter steel also becomes weaker as the temperature goes up and it may become, and frequently does become, weak enough not to be able to withstand these compressive stresses. As a result it distorts or buckles just as a thin column does when it is overstressed in compression.

"Another reason for the failure of the steel under the adverse conditions which cause a hot spot is the fact that the steel will oxidize or scale rapidly at very high temperatures. The scaling of the steel causes a decrease in the thickness of the



Viking is the original gear-within-a-gear rotary pump. It meets the needs of fast self priming, smooth, even delivery and the handling of either light or heavy liquids.

Pressures range to 100 psi in standard construction . . . 200 psi in heavy-duty construction . . . 500 psi in hydraulic oil applications.

A record of 39 years building this most copied of all rotary pump designs is behind the original, genuine Viking.

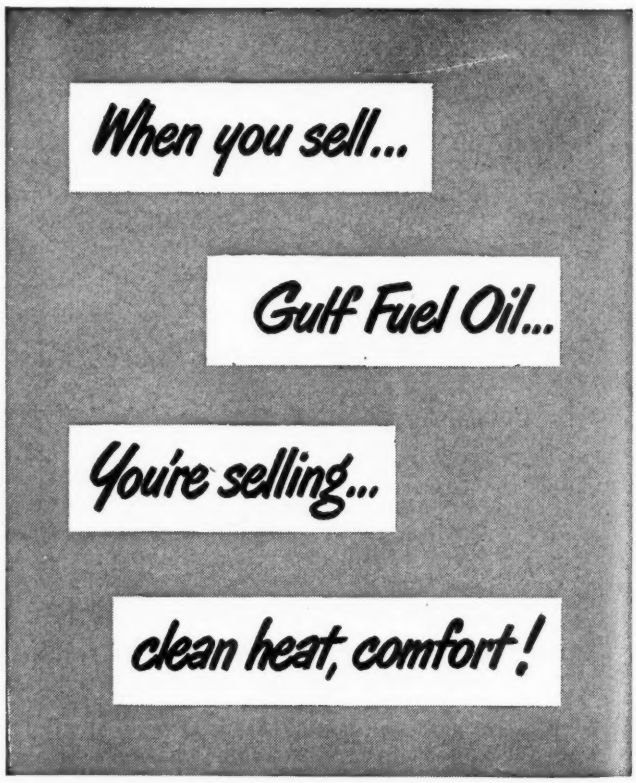
The record of building this one design exclusively is revealed in the performance of all Viking gear-within-a-gear pumps . . . the design that made rotary pumps famous.

Learn today why the Viking Rotary Pump will do your liquid handling job so successfully. Ask for free bulletin 1507EE.

VIKING
AN HONORED NAME IN PUMPING

Send For Our Catalog In Sweets

Viking PUMP COMPANY
Cedar Falls, Iowa

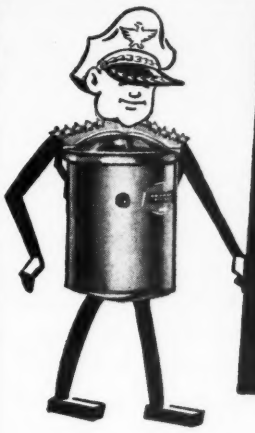


Gulf Oil Corporation • Gulf Refining Company

DIVISION SALES OFFICES:

Boston • New York • Philadelphia
Atlanta • Toledo

GULF



ARE YOU MISSING A GOOD DEAL?

General Filters thinks you are if you don't install a General Filter for every one of your fuel oil burner customers. It's a "good deal" for the customer since it greatly aids in eliminating troubles due to clogged nozzles and it's a profitable service item for you. If you haven't already done so, investigate by writing to your jobber or directly to us.

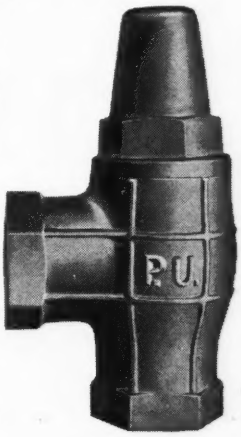
GENERAL FUEL OIL FILTER

12890 WESTWOOD AVE.
DETROIT 23, MICHIGAN

NEW PREFERRED Anti-Syphon VALVE

APPROVED BY UNDERWRITERS' LABORATORIES FOR NO. 6 OIL

Here's a new and important development in anti-syphon valves . . . Preferred's Type A Valve, which is the only valve available in these sizes approved by Underwriters' Laboratories for use with No. 6 oil, as well as with lighter oils. This angle type valve takes the place of an elbow when installed at the high point in the suction line, usually at the building wall, where the line drops to the basement floor.



- **Built-in dashpot eliminates chattering.**
- **The new Preferred Type A valve is spring-loaded and is available in 1¼", 1½" and 2" sizes for 5 or 10-foot head pressures.**
- **For Oils Up To No. 5—Valves C5 and C10 are available in ⅜" and ½" sizes.**
- **For Oils Up to and Including No. 5—Valves B5 and B10 are available in ¾" and 1" sizes. (1" size is built up from ¾" size with fittings.)**

PR 188

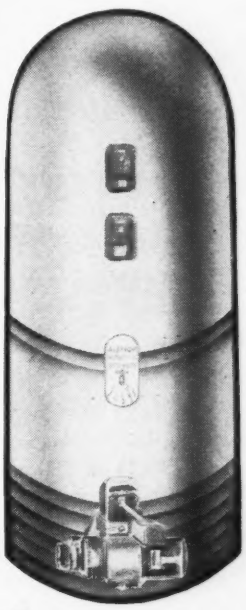
PREFERRED UTILITIES MFG. CORP.
1860 BROADWAY, NEW YORK 23, N. Y.

NOW! A RUST-FREE, SELF CONTAINED COMPLETE TANKLESS WATER HEATING SYSTEM!

The ALSTROM HYTEMP

. . . OIL FIRED, "DOUBLE TRANSFER" AUTOMATIC WATER HEATER

—for abundant clean hot water in homes, summer houses, restaurants, factories, hotels, apartment houses, etc.



Ruggedly constructed for long life at high temperatures, the heavy duty HYTEMP Automatic Water Heater employs a "double transfer" principle. Oil fired heat is taken from the primary water circuit. This circuit is sealed air tight, oxygen free, and therefore non corrosive.

Hot water is then drawn from the secondary tankless circuit made of all copper-bronze — impervious to corrosion.

The HYTEMP comes in four sizes: Models 100, 200, 350 and 500. Model number indicates equivalent useful storage tank capacity.

UNITS ARE:

- **attractively designed in enameled jacket**
- **complete with burner and all controls**
- **fully insulated**
- **built to supply more hot water at lower costs**
- **made by the manufacturers of the famous *Vacuumatic Tankless Water Heater**
- **guaranteed for ten years**

See your wholesale distributor or write direct for literature and prices.

*Reg. T.M.

Manufacturers of: heavy duty submerged coils, Tempering Valves, Oil Preheaters, Flo-Matic.

THE ALSTROM CORPORATION

790 East 176 Street, Dept. FO7 • Bronx 60, N. Y.

steel, and of course the thinner the steel the weaker it is. And so scaling as well as the high temperature effect decreases the resistance of the steel to the stresses which exist because of the large differences in temperatures between the hot spot and the cooler surrounding steel."

"Another effect which may occur under adverse conditions is carburization. If because of improper combustion, soot is deposited on the steel chamber and then later the steel is heated to temperatures over 1600° F., the soot or carbon will dissolve in the steel and because of this pick up in carbon, the resistance of the steel to oxidation will decrease. Under extreme conditions of carburization, the steel may deteriorate to such a degree that it will scale rapidly even at temperatures under 1600° F."

A high sulphur content in the fuel-oil also may affect the chamber adversely, Mr. Payson added and then posed the question, "Is there a steel which will stand up as a combustion chamber under the most adverse operating conditions of a furnace?" And the answer, "I do not know of such a steel." The next question probably is, "Which of the heat-resistant steels is most fool proof for use as combustion chambers." To this question I cannot give you a positive answer. I know that the 25% chromium steel Type 446, has been used successfully as combustion chambers for a number of years by some of the largest manufacturers of furnaces for household heating. This success is undoubtedly attributable to good design of combustion chambers, and the burners for use with these combustion chambers. The Type 446 steel has the advantage over some of the other heat-resistant steels in being more resistant to oxidation, and more resistant to attack by high sulfur content combustion products at temperatures up to about 2100° F., and in having a lower coefficient of expansion. On the other hand, the chromium-nickel steels, Types 310, 311, and 314 are stronger at high temperatures and more resistant to carburization.

"Although as just pointed out the heat-resistant steels cannot be guaranteed for long life under any and all possible conditions which are likely to be encountered in hosehold heating service, they have given, and will continue to give, good service as combustion chambers if attention is paid to the limitations of the steel and care is taken in the installation of the combustion chambers, that conditions will not exist which exceed the limitations of the steel."

"The heat-resistant steel combustion chambers have so many advantages—lightness, ease of handling and storage, absence of breakage, economy of installation, fuel saving and uniformity of temperature in operation—that it stands to reason that eventually all household heating units will be equipped with them. It merely remains for the designer of the heating unit, and for the contractor who converts furnaces from coal to oil heating, to become aware of the limitations of heat-resisting steels, and in building and installing these steel combustion chambers, to avoid abusing them, and instead to take full advantage of their capabilities."

◈

W. R. Bennett, vice president, Illinois National Bank & Trust Co., Chicago, has been added to the board of directors, Perfection Stove Co., Cleveland 4, Ohio.

Furnace Cleaning is a Profitable Business for You

- You profit on the cleaning job
- You profit on furnace repair work
- You profit by selling new furnaces

THE **KENT** DOUBLE SUCTION FURNACE CLEANER

- Live electric outlet at switchbox for extension light!

gets the most from this profitable business

The sturdy, reliable KENT gives longer service with fewer breakdowns—this means profit! So do the leads you get for repair work and new installations! Compare KENT quality before you buy!

- Dust bag is inside—less chance of tearing!
- Low center of gravity—prevents tipping!
- Separates into 2 parts — easy to carry!

CLEAN WITH KENT EQUIPMENT

The KENT Co., Inc. • 434 Canal Street • Rome, N. Y.

PREFERRED
DRAFT-A-JUSTORS

Cut Fuel Consumption by 10% TO 30%

The *Preferred* Draft-A-Justor is the original, patented Draft-A-Justor . . . improved to include the latest in engineering developments.

Stainless steel bearings and weather resistant metals provide long-life service without breakdown due to rust or wear . . . assure *continuous* fuel savings.

Millions now in satisfactory use.

WRITE FOR DESCRIPTIVE LITERATURE AND TRADE PRICES.

SIZES

Stove, domestic and commercial sizes from 4" to 24" in diameter.

Industrial sizes from 2' x 2' to 5' x 12'.

PREFERRED UTILITIES MFG. CORP.

1860 Broadway, New York 23, N. Y. Boston Office: 839 Beacon St.

fueloil & oil heat

BOOK SHELF

Here's 7 on it YOU May Have Missed

BEACON BOILER BOOK
Only complete, comprehensive boiler book. New and revised edition. Embraces ratings and specifications of every boiler built in U. S. Handy size, 8 by 11 inches.
$3.

FUELOIL HANDLING
The most significant articles by authorities who write for FUELOIL & OIL HEAT. It covers delivery problems, automatic deliveries, truck selection, driver rating and is well illustrated with diagrams, charts and photos. 64 pages, 8½ by 11 inches.
$1.

THE SELLING MAN
Specialty salesmanship in our day with emphasis on burner selling by W. A. Matheson, of Eureka Williams Corp., long a leading figure in oilheating industry. Blue cloth binding, 6 by 9, 260 pages.
$5.

INSTALLING THE DOMESTIC OILBURNER
This is the first practical guide on oilburner installation. It contains the most significant articles from FUELOIL & OIL HEAT that cover all phases of installation step by step. It is 8½ by 11 inches and contains 64 pages. Illustrated with numerous diagrams, charts and photos.
$1.

BASIC SERVICE TEXT FOR PRESSURE TYPE BURNERS
This manual was prepared by G. T. Kaufman, technical secretary of the Oil Heat Institute of America, and is intended for basic training of installers and service men in residential oil-heating. It is also a useful reference source for those who have completed the training courses. A good, elementary book. Contains quiz questions to brush up with. Pocket size. 216 pages. Paper covers.
$2.

OILHEATING SNAGS
This book gives the solutions to many of the Everyday Snags that annoy you in installation and service. We've been working on them for years. They are all simple and practical answers to the most common goat-getters on jobs. It's an 8½ by 11 inch book of 64 pages.
$1.

OIL HEATING HANDBOOK
Revision of famous text by Han A. Kunitz giving complete data on all phases of oilheating. An indispensable guide to sellers and installers of equipment. Many illustrations, charts, diagrams and graphs. Lists types of service troubles and includes estimating tables. 456 pages.
$5.

Because of the thousands of small orders we receive we ask that cash, stamps, money orders or checks be sent with all orders.

FUELOIL & OIL HEAT
232 Madison Ave. New York 16, N. Y.

Faster HEATING PAN
Faster VAPORIZATION
UNBEATABLE HUMIDIFYING PERFORMANCE

THERMO-DRIP AUTOMATIC HUMIDIFIER

DRIP FEED PRINCIPLE
Does not spray or run. Water drips into pan through funneled orifice one drop at a time.

SUPER SENSITIVE THERMOSTAT
Starts or stops the flow of water according to bonnet temperature. Leaves only a thin film of water in pan.

EASY TO REGULATE
Outside screw adjuster permits fingertip control of water flow.

FLEXIBLE INSTALLATION
12 pan sizes are available.

Here's the first and only humidifier on the market that has every feature wanted. It is precision-built at every point for superior quality — not a production line job. Will fit every type warm air furnace. It installs quickly and easily, thus reducing high labor costs.

ONE KIT TO PURCHASE
All accessories are contained in one compact unit. Easily assembled — economical to use—quick to sell.

COMPARE THESE SUPERIOR PERFORMANCE FEATURES

- New, improved, air-tight valve orifice has positive seating action.
- No electrolytic action.
- No clogging.
- Easy to clean and service.
- Less parts — simplified design.
- No stagnant pool of water left in pan — no scum.
- Immediate vaporization.
- Easy, flexible installation.

WRITE TODAY FOR *FREE* LITERATURE

AUTOMATIC HUMIDIFIER COMPANY
Cedar Falls, Iowa

N. E. Gas Forum

(*Continued from page 62*)

heating oil is showing an increase each year. To be truthful, we can note a considerable difference as between various natural gas cities in the continuing growth of oilheat which is more directly traceable to the aggressiveness of the oilburner industry in one area as compared to another than to any price advantage one way or another in favor of either gas or oil."

Mottram Tells of Milwaukee Experience

"IT'S HUMAN NATURE to fear the things we know very little about. But when we know exactly what is in store for us, it usually isn't as bad as we feared it would be.

"However, let's not minimize the threat that Natural Gas has been or is going to be. I have no intention of doing that.

"The name—Natural Gas—has had a peculiar misleading effect upon the public. The fact that it is a product of nature and embodies that term in its name, makes people think it is cheap—that it is God's gift to His people—that it doesn't cost anything, that it just enters our homes through a pipe, and when it gets there it burns.

"Nothing could be farther from the truth—and yet people believe it, install gas heating equipment in their homes—and then one day receive their gas bill—and sadly discover it's too late to 'think it over.'

"There must necessarily be some inherent virtues of a very high order in oilheating to account for the wide public acceptance it has enjoyed, despite the fact that we have frittered away a great deal of public acceptance—confidence which we have received as a gift and not earned by any service we have rendered to the public.

"Yes, it is true, more and more people are buying oilheat, people do like it, and it has many, many advantages. But the more thoughtful among our oilheat customers, while clasping oilheat to their bosoms, are often tempted to look across the street and very interestingly and inquisitively examine, from a distance, the beautifully, painted blonde who has just moved into town—whose name is 'Natural Gas.'

"Yes, gentlemen, that blonde is in town and she's attracting the attention of a great many of our old friends. Maybe there's a good reason why she's getting so much attention. Apparently we've been very well satisfied with ourselves. We've sat back very complacently—we've been satisfied with our old, unpressed suit, our unpolished shoes and a hair-cut that has now reached the stage where it completely covers our soiled collar.

"Gentlemen, let's be frank, you face a challenge from the beatutifully painted blonde. Are you going to get your oilheating installations up to a higher degree of efficiency, or are you going to wait until their poor efficiency can be used as a weapon against all of us?

"Are you going to live up to your promise that you woud respond quickly

BEAT COMPETITION

***with the* PACKAGE DEAL**

Oilburner conversion package No. 4

THIS IS WHAT YOU GET: A prominent nationally-advertised top-quality oilburner, with 3 controls, combustion chamber, refractory cement, valve, filter, tubing, tank gauge, and all accessories necessary for a complete installation. All items are top brand names carrying a one-year guarantee.

— AT A PRICE SO LOW IT CAN'T BE PUBLISHED! WRITE TODAY!

ALBANY AUTOMATIC SUPPLY CO. INC.
28 Madison Avenue **Albany 1, N. Y.**

WHY IS A SIMPLEX SIMPLE TO SERVICE?

SIMPLEX PNEUMATIC TURBINE TYPE HEAVY OIL BURNERS

SIMPLEX

SINCE 1910

Every SIMPLEX has a minimum of moving parts to get out of order. Every SIMPLEX uses a **standard,** nationally recognized motor.

Add the fact that SIMPLEX heavy oil burners are priced for a whale of a dealer profit, and you know SIMPLEX offers an attractive dealer proposition.

A note on your letterhead brings the details.

SIMPLEX OIL HEATING CORP.
11 Park Place • New York 7, N. Y.

R & I Oil Burner Dealer Supplies

For more than twenty years R & I have specialized in the manufacture of the following products:

Stic-tite Insulating Cement for covering boilers, etc.
Hearth Cement for pouring special shapes, hearths of rotary burners and floors of chambers.
#3000 Refractory Cement for patching.
Combustion Chambers.
Insul-fil Rockwool Insulation for packing between combustion chamber and cast-iron base.
Black Furnace Cement for sealing metal joints.

Your supply house has these R & I products. Write us for bulletin OB-101.

R&I

REFRACTORY & INSULATION CORP.
116 Wall St., New York 5, N. Y.
Chicago 4, Ill., Newark 2, N. J., Philadelphia 2, Pa., Cleveland 15, O.

INSTALL A TRULY *Automatic* AIR VENT

use Maid-O'-Mist AUTO-VENTS

When installing an air vent on hot water heating systems, radiators, convectors, baseboard radiators, unit heaters, etc., be sure it's truly automatic. With Maid-O'-Mist Auto-Vents you can automatically vent out the air that causes circulation trouble and heating waste. More and more contractors who value satisfied customers are installing these trouble stoppers. No air chamber is required . . . quick and easy to install. See your jobber or write for data and attractive prices.

"Get that Air Out and Keep It Out" with Auto-Vents

MAID-O'-MIST INC.

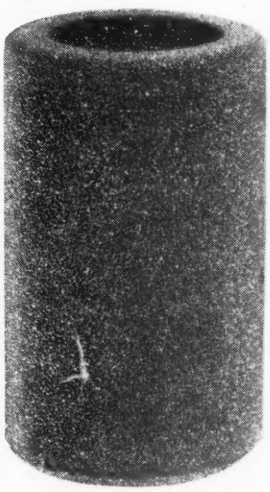
AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS

3205 N. Pulaski Rd. CHICAGO 41, ILL.

A filter is only as good as its element

—and only KLEMM has CHEMISTONE (the original controlled porosity element).

Your customers will be quick to see the advantages of this superior filter. Right now is the time for you to stock KLEMM FILTERS so that every salesman can take one with him on summer service calls. Write today for special introductory offer.



Actual photograph of a cleanable CHEMISTONE element

Klemm

AUTOMOTIVE PRODUCTS CO.
1718 N. Damen Ave., Chicago 47, Ill.
Export Div.: Guiterman Co., Inc.
35 S. Williams St., New York, N. Y.

Because they're years ahead in steam generation . .

only

CYCLOTHERM *STEAM GENERATORS*

Trade Mark Reg.

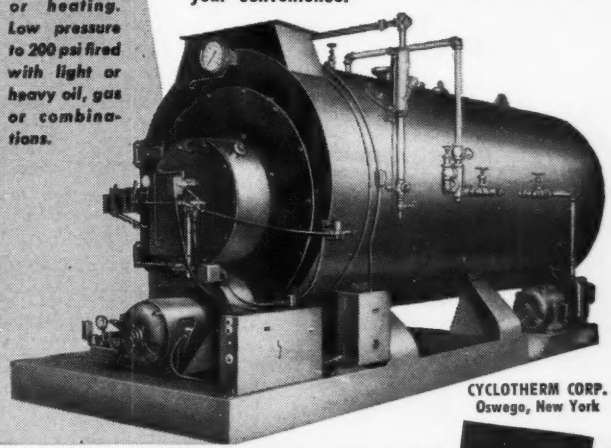
have cyclonic* combustion POWER

***WHAT IS IT?** It's the modern scientific discovery of transferring heat at the highest degree of efficiency with a new low in fuel consumption. Principal factors of which are the cylinderized solid flame with its exclusive cyclo-motion power, designed to utilize the full potential of every particle of fuel . . . and the thin layer of air resulting from centrifugal force that's always between the flame and wall of combustion chamber. A combination to produce steam far in excess of conventional standards for measured heating surfaces.

SEND FOR *ALL* THE BIG REASONS

Learn how the completely automatic Cyclotherm with its unexcelled all-in-one package type features wipe out waste and excess costs. If you are planning a new or replacement boiler installation it will pay you to first get the facts on Cyclotherm. The coupon below is for your convenience.

***SIZES** available to fit your steam or water load for processing or heating. Low pressure to 200 psi fired with light or heavy oil, gas or combinations.*



CYCLOTHERM CORP.
Oswego, New York

CYCLOTHERM CORP., OSWEGO, N. Y.

Gentlemen: Please send me bulletin H-1 showing the advantages of Cyclotherm's new concept in Heat Transfer. Without obligation, of course. Dept. FO-7

NAME .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....

to a service call or are you going to wait until the customer has suffered for hours in a cold house and has called you back several times before you take care of his oilburner?

"Are you dealers going to quit blaming the fueloil for the cause of a burner's failure? Are you oil company representatives going to stop telling the customer that the oilburner he bought is a 'lemon'?

"Gentlemen, the answer is in your hands.

"You must remember that your competitor is strong. He has a solidly, united, monopolistic organization—with a single, well-defined policy. That policy embodies an aggressive sales campaign, promoting an excellent form of automatic heat. That policy includes the fulfillment of every promise he will make, to give prompt service and to stand back of his installations. He will not 'knock' any segment of the industry because in doing so he will be knocking himself.

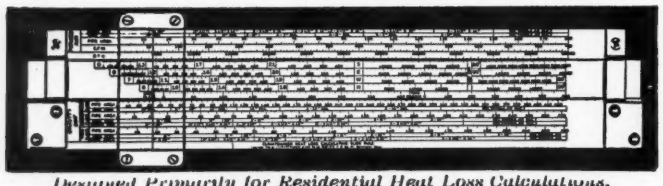
"Therefore, *we* must have the same kind of a policy and above all, we cannot afford to knock any single segment of the fueloil or oilburner industry. We *must* all be allies in this fight against Natural Gas.

"But let's look at some of the problems that will soon be facing the oilheat industry in New England:

1. Gas heat will enter this market, as it has all others, with a large fanfare of publicity and advertising. You've probably had some manufactured gas installations out here for a long time. If you have, they were probably limited to the better and more expensive homes because they were expensive to operate. Because of the high fuel costs, and the limited number of installations, the equipment was exceptionally good, well-installed and excellently serviced and, in almost every case, the buildings were completely insulated. Now comes cheaper natural gas with these more expensive previous installations as actual testimonials for its acceptance.

"2. The introduction of Natural Gas in this market will have the full weight of an aggressive campaign by your local gas companies. Oilburner dealers, whose manufacturers make gas heating equipment; heating contractors; sheet metal contractors; plumbers; and scores of newly organized gas heating equipment sales companies which have been formed to get aboard the 'gravy-train'; will be called into a series of sales meetings conducted by the local gas companies. What they will tell these prospective sellers and installers of gas heating equipment, I'll refer to in a moment.

"3. Next, your local gas companies will probably proceed along the same pattern as that followed in Milwaukee. With the cooperation of the two large Milwaukee daily newspapers they announced the advent of Natural Gas in each paper, on the same day, carrying a special 32 page Natural Gas section. The pictures showing the laying of the pipe line, the huge valve being turned on to permit natural gas to flow into the mains that formerly carried manufactured gas; the alluring pictures; the history of natural gas and the illuminating diagrams showing the billions of cubic feet of natural gas being held in reserve; stories on how cheaply it had served other communities; and thousands of lines of other interesting propaganda. In addition to all that, the section was filled with large ads offering every



Designed Primarily for Residential Heat Loss Calculations.

CLIMATEMAKER Heat Loss Calculating **SLIDE RULE**

Gives the RIGHT Answers QUICKLY to:

★ B.T.U. heat loss per room. ★ C.F.M. required per room.
★ Pipe area, pipe and stack size for forced or gravity warm air heating.
★ E.D.R. of steam and hot water.
★ Blower size.
★ Figures outside design temperatures from 40 Below to 40 Above zero. Designs based on zero to 70°.

Easy to learn—Simple to use.

ORDER NOW—Write Dept. F-7

$15.00 PRICE

Cash With Order

Copyrighted in U.S.A. and Canada

CLIMATEMAKER SLIDE RULE COMPANY, Not Inc.
1404 E. Washington St. Bloomington, Ill.

SOOT-GO SOOT DESTROYER

STILL THE BEST for cleaning oil and gas-fired heating plants.

EFFICIENT AND ECONOMICAL TO USE

ALSO:

SLUDGE-GO for Cleaning Fuel Oil Tanks and Will Emulsify Water.

EZ-E WELD for Sealing Leaky Boilers. No After Odor. No Draining.

Write for name of nearest jobber

KALMIDE CHEMICAL CO., INC.
17 East 42nd St. New York 17, N. Y.

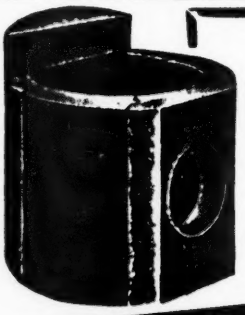
AIRFLAME CONES SAVE 35% FUEL

Hundreds of Airflame Air Cones installed last summer in leading makes of Low Pressure burners showed winter savings of more than 35%.

So, we eliminated the complicated and useless parts which make L. Ps. hard to service and built a new one as simple as the Airflame Pressure Burner.

It can lift its own fuel from underground tanks and costs the dealer less than any other L. P. Burner. More facts in next issue.

AIRFLAME, INCORPORATED
648 McAlister Avenue Waukegan, Ill.



For More Profitable Jobs

NU-TROJAN Combustion Chambers

A Product of McLeod & Henry Co., Inc.

A. R. WEBBER CO., INC.
DEPT. 61
NEW HAVEN 11, CONN.

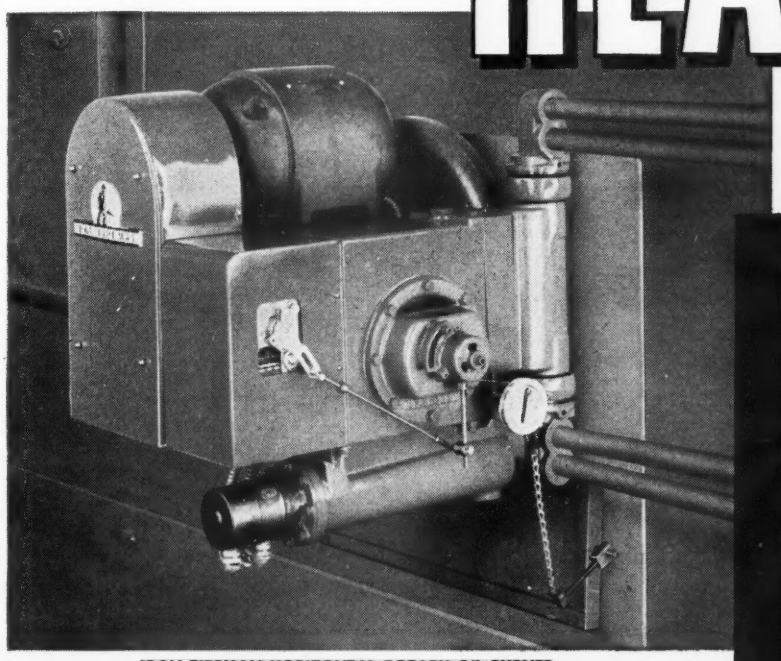
Nu-Trojan Chambers have the features that lower installation costs and reduce servicing costs to help you secure profitable jobs. Has few parts, does not need steel bands to hold them in place. First quality "Steel Mixture" Pennsylvania fire clay. Fusing point 3180° F. Write Dept. 61 for details.

EVERYTHING FOR THE OIL BURNER TRADE

IRON FIREMAN

precision firing with HEAVY OIL

NO. 6 OR LIGHTER



IRON FIREMAN HORIZONTAL ROTARY OIL BURNER

Oil feed rate stays within ½ of 1% of setting, regardless of oil temperature or viscosity

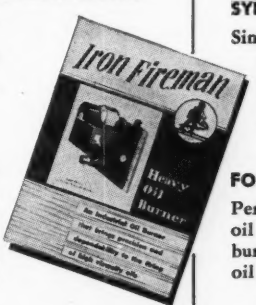
America's most advanced burner for firing heavy fuel oil

The Iron Fireman horizontal rotary oil burner completely eliminates the troublesome viscosity factor in firing heavy oils. Oil-flow to nozzle is steady and uniform, metered with extreme accuracy by the Iron Fireman Oil Volumeter which is wholly unaffected by viscosity changes.

This makes possible the highest degree of precision in flame control attained in heavy oil firing. Perfect synchronization of oil and air volume produces efficient combustion, even when throttled down to 10 per cent of capacity.

Every detail of this superb burner has been engineered with extreme care. Oil and air passages have been carefully designed to assure efficient operation with low power consumption.

For further information write to Iron Fireman Mfg. Co., 3101 W. 106th St., Cleveland 11, Ohio. Other plants in Portland, Oregon; Toronto, Canada. Qualified dealers throughout the U. S. and Canada.



IRON FIREMAN OIL VOLUMETER

The Iron Fireman Oil Volumeter is a positive displacement, variable volume metering pump, completely submerged in the oil reservoir. It meters oil to the nozzle by regulating the stroke of its multiple pistons. No regulating valves or viscosity compensating device is required.

SYNCHRONIZED OIL-AIR CONTROL

Single control lever regulates oil, primary and secondary air. Correct fuel-air ratio maintained automatically through entire firing range. For manual, semi-automatic or full automatic operation.

FOUR-PORT HINGE POST

Permits installation of hot water or steam oil heater in oil line on *pressure* side of burner pump. No suction pumping of hot oil to form vapor locks.

OIL-GAS-COAL COMBINATION

Iron Fireman ring-type gas burner and pneumatic spreader stoker combine perfectly with rotary oil burner. Fuel change is accomplished in a short time without major alterations. Protects your plant against high fuel prices or shortages. Impartial Iron Fireman survey will help you determine which fuels are best fitted for your operation.

IRON FIREMAN

THE IRON FIREMAN

AUTOMATIC OIL FIRING EQUIPMENT

fueloil & oil heat

ANNOUNCING

The Hago 3-stage-strainer!

ALL METAL! CAN BE CLEANED!

Oil is filtered through two layers of 200 mesh and one of 150 mesh wire cloth for removal of the smallest particles of foreign matter. Recommended for small capacity nozzles.

Hago Products - 1281 Springfield Ave., Irvington 11, N. J.

known make of gas heating equipment, priced extremely low, with immediate installation, and long term payment plans. All of this should have swept the public off its feet—right into the arms of that beautifully painted blonde. But it didn't.

"What did happen then?

"Well, Natural Gas did come to Milwaukee on December 1, 1949. As Executive Secretary of the Wisconsin Oil-Heat Association, Inc., I had previously checked with other cities in the country to determine, in advance, just what the pattern would be when Natural Gas hit Milwaukee. I received some excellent cooperation from the cities of Detroit, St. Louis, Minneapolis-St. Paul, and Washington, D. C. It is interesting to note that our local gas company has followed, to date, exactly the same pattern that has been followed in these other cities, and we are reasonably sure that they will continue to follow it, unless we throw some more monkey-wrenches into the machinery.

"Next, large ads appeared in the local newspapers announcing an unlimited supply of low cost natural gas for house heating. The rate finally fixed by the Public Service Commission was 9.3¢ per therm, which compares with fueloil at 13.3¢ per gallon. No. 2 and 3 fueloil in the Milwaukee market is selling currently at 13¢ which gives oilheat a very slight price advantage.

"Then one morning, on or about February first, the beautiful blonde got up with a terrible headache. It seems that on that very dreary and dark morning there was a certain chill in the air and the postman only had to ring once. Mr. and Mrs. Milwaukee Home Owner, who had been using gas or who had recently converted to gas, were waiting for the postman because they wanted to know what it had cost them to heat their homes with natural gas for the first full month since the change-over from manufactured gas had taken place. There was a loud cry—some wailing—and considerable gnashing of teeth. It was the most unwelcome bill that Milwaukee home owners had ever received. Some bills were from 50% to over 200% higher than before. That morning, the beautiful blonde, without her make-up, didn't look so good. Hundreds of personal calls and phone calls to the Mayor's office resulted in his setting up a special committee to study the rates, to check the amount of BTU's in the natural gas being sold, and to set-up check-meters throughout the city to measure the BTU's of the gas being sold.

"I guess the oilheat industry got a lucky break in Milwaukee. Let's hope that you are as fortunate. Tremendous damage was done to the sale of gas burners. For days the newspapers carried front page stories about the high gas bills, citing hundreds of dissatisfied customers, giving actual names and addresses and the amount of their new gas bills over what they had been the same month a year before. Then followed front page stories on the activities taken by the Mayor and his committees.

"Gas company officials tried frantically to explain. They blamed it on errors in their accounting department and promised to adjust every single customer's bill the following month. I guess a great many customers' bills were adjusted by asking the customer, "How much do you want to pay?"

"Here's how oilheat stands in the Milwaukee area right now:

"In 1949, 48,256 Milwaukee County homes were heated with oil, which represents 19.7% of all the homes in the county. By January 1, 1950, that number had increased by 5.5% to 64,010 or 25.2% of all the homes are now oil-heated. In the same period the number of gas installations increased from 10,288 to 12,192, an increase of 6/10% to a total of only 4.8% of the homes in the county.

"More than two years ago we realized that we were eventually going to face this competition. We had heard that in some areas where Natural Gas had moved in, the oilheat industry had done 'too little, too late.' We made up our minds that it wouldn't happen here, if we knew anything about it. We decided to keep our red flannels on and not get caught with them unbuttoned, if we could help it. We outlined a plan to increase our Association dues, by doubling our assessments and then by enlarging our membership, and to use all of the increased revenue for advertising purposes only. The plan met with unanimous support. Oil companies and burner dealers, and other in allied lines realized

FOR MORE

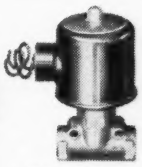
REPEAT SALES

Sell **BOCK**
WATER HEATERS
with a Gun type Burner.
Your Burner if you prefer.

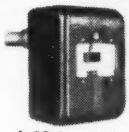
Bock water heaters come in three popular sizes including a low cost 30 gallon model for residences. They are supplied with or without the oil burner. Come with electric wiring in place and with a removable combustion chamber

BOCK
CORPORATION
MADISON, WISCONSIN

Wherever
CONTROL
is vital



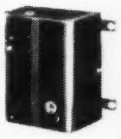
K-21 Magnetic
Single Seated Valve



L-32 Immersion
Thermostat

K-10 Magnetic
Lever Valve

V-110-1 Manual
Reset Valve



R-99 Oil Burner
Stack Control

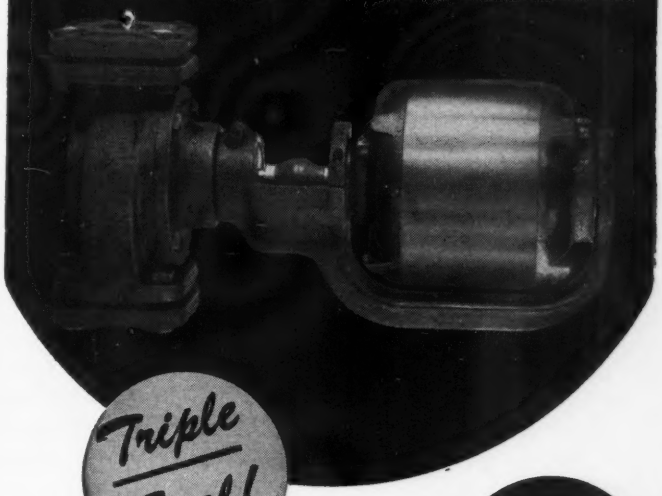
K-15-E Magnetic
Piloted Piston Valve

GENERAL CONTROLS
are in charge!

GENERAL G|C **CONTROLS**
801 Allen Avenue, Glendale 1, California
Manufacturers of Automatic Pressure, Temperature, Feed and Flow Controls
FACTORY BRANCHES: Baltimore 5, Birmingham 3, Boston 16, Buffalo 3, Chicago 5, Cincinnati 2, Cleveland 15, Dallas 1, Denver 4, Detroit 8, Glendale 1, Houston 6, Kansas City 2, Minneapolis 2, Newark 6, New York 17, Philadelphia 23, Pittsburgh 22, St. Louis 12, San Francisco 7, Seattle 1, Tulsa 6
DISTRIBUTORS IN PRINCIPAL CITIES

GLOBE

HOT WATER CIRCULATORS



Triple Seal!

Quiet!

★ Hardened Steel Shaft, precision ground

★ Water Seal—Hardened stainless steel face to carbon

★ Extra-long, OILITE, oil-impregnated Bronze Bearings

★ Flexible Neoprene Coupling

★ 1/6 hp Westinghouse or equivalent Motor

These quality components, together with GLOBE precision engineering, make the quiet, rugged GLOBE Hot Water Circulator the most outstanding circulator buy in its class.

Tested!

Guaranteed

Manufacturers of Low Water Cut-Offs and Controls for a Quarter Century

Send for Catalog

GLOBE CONTROLS CO.
81 WARREN STREET, NEWARK 2, N. J.
EXCLUSIVE TERRITORIES AVAILABLE

SAYBOLT Calibration Can Save You Money

HERE'S HOW: Saybolt Calibration insures accuracy in fueloil meters, tank trucks, and bulk storage tanks, thus preventing small daily losses which total hundreds of dollars annually.

Saybolt Calibration Service prevents profit leaks and pays for itself many times over in fueloil savings. Contact any of the 50 Saybolt offices in the United States and foreign ports, or write to:

E. W. SAYBOLT & COMPANY
Serving the Petroleum Industry for Over Half a Century
265 BAYWAY ELIZABETH 2, N. J.

that the assessment was a small price to pay to insure continuance of oilheat.

"But there were certain fundamental facts which also had to be established.

"First, we secured a copy of a survey which was made, covering all areas, including every gas area. This survey showed that 38% of the people expressed a desire for oilheat, in preference to gas, or any other fuel. If that were true, then we wanted to find out why this 38% preferred oil. Then we could write advertising so that the other 62% could learn of these reasons.

Most of this 38%, we found, were prejudiced against gas, and the price seemed to be a very minor factor, no matter what that price might be. Some wouldn't have gas at any price.

"We were eager to learn what their reasons were: Here they are in the order of their expressed importance:

(1) Gas is a dangerous fuel.
(2) It provides chilly heat.
(3) It is not healthful.
(4) It has an odor.
(5) It is dirty.
(6) Gas pressures are low in the coldest weather when heat is most needed.
(7) It is controlled by a monopoly.

"Well, some of these reasons surprised us, too. We realized that some of them might not be entirely true, but whether they are or not, they speak the sentiments of great masses of the people who think they are true and it's what the public thinks that counts more than actual facts in any merchandising situation.

"Regardless of this fact, the Wisconsin Oil-Heat Association determined to establish a firm policy of truth and facts in all of its advertising. There were also a number of local angles developed which gave us additional material for our advertising. We knew that the gas company would stress:

(1) Low installation cost;
(2) No storage tank to buy;
(3) No ordering of fuel necessary—it comes into your house through a pipe;
(4) You pay for your fuel after you use it—not months before;
(5) Guaranteed installations, inspected before the gas is turned on; and of course, the claim,
(6) More economical.

"We had collected literature used by gas companies over a long period of years. We studied this literature and extracted all the claims that they had made. We then drew up a sales manual and answered these claims one by one. The results were amazing.

"A meeting was called of all the sales people of all the companies belonging to our Association. We discussed, argued and cussed the claims and the answers. It resulted in a united industry. Every salesman had the same story to tell—the same answers to the gas companies' claims—in other words, they had the facts. Everyone could then speak the truth about oilheat—and from this meeting came the theme for our advertising campaign which is 'NOTHING COMPARES WITH OILHEAT.' Our entire advertising campaign has been built around that theme, together with the slogan. 'Oilheat is Safe—you can extinguish a flaming torch in a pail of fuel-oil.'

Our newspaper advertising was started February 12, 1950. The ads have not been large. Most of them have been 3 columns by 10 inches—30 inch ads—but they have been consistent and effective.

"We have supplemented this newspaper advertising with a very effective

Sundstrand

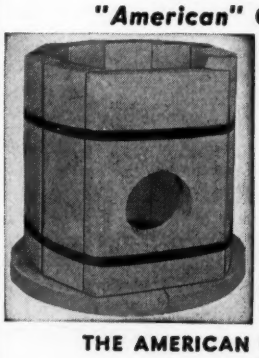
an oil burner for every heating job

- All Surfaces Machined
- Precision Made Throughout
- Completely Fire Tested
- Variable Tube Lengths To Fit YOUR Requirements
- Flange Mounted
- Meet All Local And State Requirements

Write Us For Complete Information

SUNDSTRAND ENGINEERING COMPANY
ROCKFORD ILLINOIS

FOR BETTER HEATING
"American" Combustion Chambers



American chambers for domestic oil burners are recognized for these features:

BETTER PERFORMANCE — American light weight refractory chambers give you fast heat-up, quiet operation and fuel savings that mean satisfied customers.

HIGH QUALITY—Only high grade refractories built to withstand 2500° operating temperatures are used.

EASY INSTALLATION—Controlled manufacturing and careful design give you flexible pieces that fit together with a minimum of effort.

We invite your inquiries on standard or special shapes.

THE AMERICAN CLAY FORMING COMPANY
TIFFIN, OHIO
Twenty-seven years making quality refractories for the heating industry.

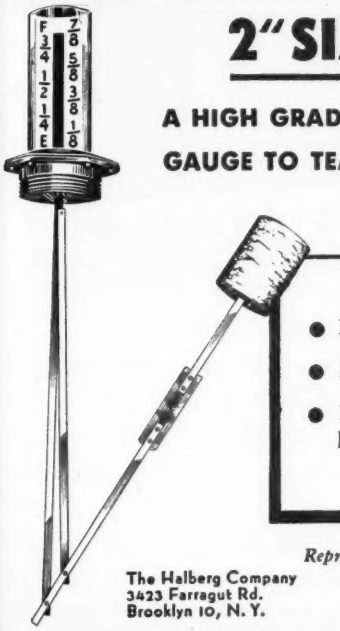
CALLING NEW YORK AREA

International now available in...

2" SIZE

A HIGH GRADE LEVER ARM TYPE GAUGE TO TEAM WITH...

Galongage



- Flexible float arm
- Rugged and durable
- Has largest numbers calibrated in eighths

Represented by:

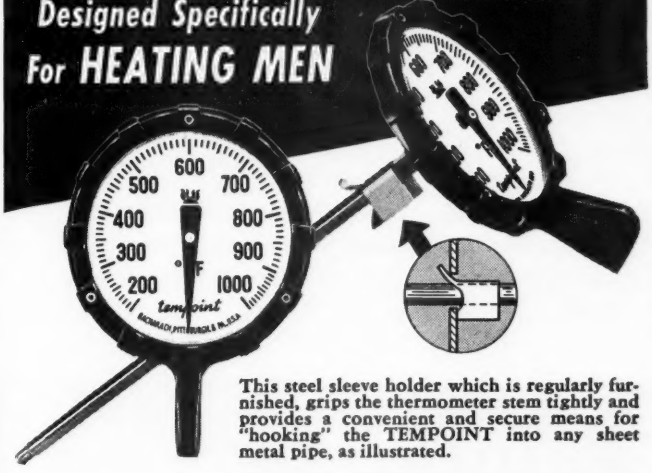
The Halberg Company
3423 Farragut Rd.
Brooklyn 10, N. Y.

Mercury Sales Company
214 Empire Bldg.
Syracuse, N. Y.

APPLIED MECHANICS COMPANY
167 OLIVER STREET, BOSTON 10, MASSACHUSETTS

NOW- A FLUE GAS THERMOMETER

Designed Specifically For HEATING MEN



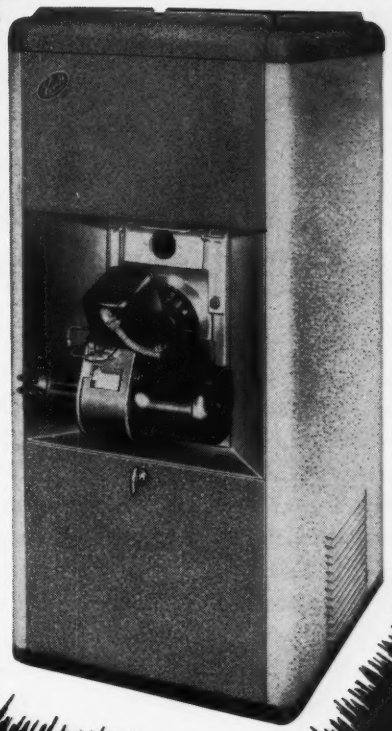
This steel sleeve holder which is regularly furnished, grips the thermometer stem tightly and provides a convenient and secure means for "hooking" the TEMPOINT into any sheet metal pipe, as illustrated.

Temperature indications of this precision bi-metal thermometer are as fast as those of the usual mercury thermometer, but this instrument is not subject to the many breakage hazards of ordinary thermometers. With reasonable care it will retain its guaranteed accuracy of within 1% of its range indefinitely. The three-inch diameter face, with large numerals and clear graduations together with the red V-shaped pointer make the TEMPOINT exceptionally easy to read, even in dimly lit locations.

This is one of a complete line of heating test instruments. Ask your jobber about the TEMPOINT or write for Leaflet 775.

BACHARACH INDUSTRIAL INSTRUMENT CO.
7000 BENNETT STREET— PITTSBURGH 8, PA.

COMPACT



TO FIT THAT SMALL SPACE!

Rybolt HI-BOY

OIL FIRED *Automatic* WINTER AIR CONDITIONER

Here's the ideal oil-fired Winter Air Conditioner for installation where floor space is limited. Its unusual compactness is achieved by design and arrangement rather than by any material reduction in size of essential working parts.

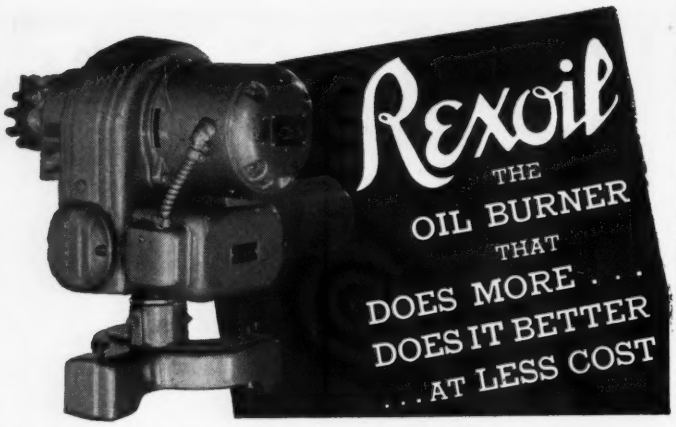
The Rybolt Hi-Boy is *fully automatic*, providing unusual convenience, comfort and fuel economy. Large, quiet running blower with easily accessible motor. Improved trouble-free burner, quiet, efficient and easy to service. Smartly styled cabinet, finished in two tone gray baked enamel. Size, height 60" x depth 27" x width 27". BTU at register 85,000.

LARGER SIZES, TOO

The Rybolt line also includes oil-burner units of larger capacity in four sizes, 85,000, 115,000, 150,000, 200,000 B.t.u. at the register.

WRITE FOR ATTRACTIVE FOLDER

THE RYBOLT HEATER COMPANY
619 MILLER STREET • ASHLAND, OHIO



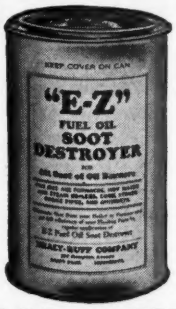
REIF-REXOIL, Inc. 37 Carroll St., Buffalo, N. Y.
Mfgrs. of Oil Burners, Boilers, Furnaces

E-Z MORE PROFIT PER Service Call

When the oil burner Servicemen answer a call it is easy many times to add furnace cleaning to the job. E-Z Fuel Oil Soot Destroyer (for fuel oil soot only) does a thorough, clean, safe job in just one application. Takes but a few minutes. Keep a 5 lb. Can on each service truck, always. Stock the 1 lb. Cans for sales to your customers. If your Distributor cannot supply you, order direct.

No. 1 Pkg. approx. 1 lb. . . . List $1.00 ea.
No. 5 Pkg. approx. 5 lbs. . . List $4.50 ea.
Liberal discount to bona fide Servicemen.

Special discount to Distributors on quantity purchases, allows for extending regular discount to Dealers and Servicemen.



HEALY-RUFF COMPANY
797 Hampden Avenue • St. Paul 4, Minnesota

billboard campaign and also featured an excellent booth at the Home Show which was attended by more than 140,000 people. Our ads are talking the same language that the salesmen are talking.

"Gas competition, with all its advertising about 'automatic heat,' has actually stimulated a desire for automatic heat. And if those people in Milwaukee, or in New England, or in Oskaloosa, who want automatic heat can be made to feel prejudiced toward gas, oil will be the principal beneficiary.

"We have dealers who sell both gas and oilburning equipment. The reason is: the manufacturers they represent make both kinds of equipment. Actual experience shows they are selling 10 oilburners to one gas burner. They advertise gas equipment in the newspapers. People come in to see the gas equipment, and, finding out that the dealer sells both, and believing the dealer is not prejudiced, they ask about oil, also. It would be a poor salesman who wouldn't try to sell oilburners under these circumstances . . . and they do. You will find the same conditions will come to New England.

"But now is the time to plan your defenses. NOW is the time to build a strong public relations program. Let's discard that old wrinkled suit that I referred to in the beginning of this talk. Let's get our shoes shined, and have our hair cut, so that customer of ours will feels that we're not so bad after all and will not be lured to the other side of the street by that seemingly attractive blonde.

"We all know that our own tried and true girl friend, 'Miss Oilheat,' is beautifully 'stacked' herself and, with the necessary beauty treatments called 'confidence' and 'publicity,' can easily outshine her jazzy new blonde competitor."

◈

W. H. Olsen, Ann Arbor, Mich., for the past several months has represented C. A. Olsen Mfg. Co., Elyria, Ohio He is handling the Luxaire furnace line in the Michigan sales territory.

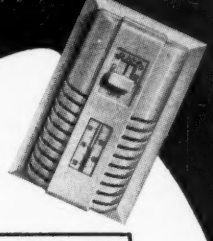
Gerald G. Bowers has joined the copy writing staff of Perfection Stove Co., Cleveland 4, Ohio.

Roger Haydock, Jr., has been added to the engineering staff, Monogram Products Co., Inc., Philadelphia, Pa., manufacturers of Lite-Cast combustion chambers. He is a recent graduate of the Towne School of Engineering, University of Pennsylvania, and will work on the future development of Lite-Cast products.

Kenneth L. Lamm has been employed as a member of the Engineering Department, Timken Silent Automatic Div., Jackson, Mich. He recently has done research and test work in various phases of heating, and has a master's degree in mechanical engineering.

Paul J. VandeCastle is covering northeastern and central Wisconsin and northern Michigan for Perfection Stove Co., Cleveland 4, Ohio, working out of the company's Chicago district. He will handle the entire line including oilheating furnaces and water heaters.

McCORKLE ADD-ON
No. 412 Automatic Control for Circulating Heaters



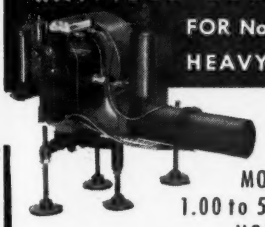
Easily Installed by Owner

- Low Cost—High Quality—Built-in Transformer.
- Simple Plug-in Installation—no electrician needed.
- Emergency current-failure lever—automatic reset.
- Accurate, dependable thermostat with positive night cut-off.

Increase your sales with the 412 package set. It gives your customers fully automatic heat at a reasonable price.

D. H. McCORKLE CO.
Box E, Station A • Berkeley, California

RAYFIELD BURNERS
FOR No. 4 or No. 5
HEAVY OILS



MODEL JR.
1.00 to 5.00 GALS./HR.
MODEL D4
3.00 to 12.00 GALS./HR.

1. Fully Automatic
2. Self Cleaning Nozzle
3. Self Lubricating
4. All Electric Operation
5. Pays for itself from savings
6. Burns the cheaper No. 5 oil

RAYFIELD
AUTOMATIC

HEAT RECLAIMERS

1. Low in Price—Automatic—Easy Installation
2. Installs on Boilers, Furnaces or Stoves
3. For use with Coal, Gas, Oil or Wood
4. Increases output of ANY gravity warm air furnace
5. Heats Basements, Play Rooms, Garages, etc.
6. The hotter the stack—the more heat reclaimed
7. Saves wasted heat now going up the chimney

PATENTED COMBUSTION
HEAD OIL
BURNERS

for CATALYTIC
OILS TO
#3 GRADE
2 MODELS
1.00 to 3.00 GALS./HR. CAPACITY

1. Amazing Economy 12 to 15% CO_2
2. Clean boilers with perfected combustion
3. Burns Catalytic oils easily
4. Quiet—No Vibration or pulsation
5. Cuts user's oil bills 14 to 36%
6. The ideal replacement oil burner

C. L. RAYFIELD COMPANY • 2010-18 SO. HALSTED ST. • CHICAGO 8, ILL.

Fueloil Heaters

(*Continued from page 58*)

ing or contracting with the movement of the two sections of the shell.

As these terminal line heaters may have as many as 2000 steel tubes rolled into their tube sheets, which are bolted at each end to the shell flanges, an enormous stress could set up if the shell sections were not able to move with the expansion or contraction of the tubes.

The split ring shell expansion joint can be seen on the right-hand end of the line heater in Figure No. 5.

Heater Steam Requirements

Fueloil terminals are prodigious users of steam, and not the least in the cost of an up-to-date storage terminal is the boiler plant that must be standing by at all times to keep pace with the fluctuations in steam requirements.

A gallon of No. 6 oil, passing from storage tank to transport truck, may be heated 100° F. under severe weather conditions. This rise calls for an input of 377 B.T.U.'s per gallon. With five loading racks working, each delivering 300 g.p.m. to its truck, a boiler plant output of about 1000 H.P. is required. The fuel consumption at this rate of steam generation will run about 340 gallons per hour.

Some terminals operate on high pressure steam, but most of the newer ones, particularly those run by the independent wholesalers, use low pressure steam, 15 PSIG, or less, at the boiler.

The high capacity line oil heaters, especially those designed for use with low pressure steam, are of necessity huge units, weighing upwards of 15 tons. They may contain as many as 2000 steel heating tubes, housed in heater shells 48" or 54" in diameter. With a 24'0" long tube, the overall length of such heaters can reach 30'0".

On such units, two steam inlet connections are employed, in order to obtain an even steam distribution along the heater length. Condensate is collected in a hotwell set at the bottom of the shell. Ample air venting facilities must be provided, and plenty of steam trap capacity is essential, in view of the high rate of steam condensation.

Package type units fired by fully automatic heavy oilburners, are favored, although some of the new plants have installed regular water tube type boilers. Low fire start modulating flame controls are universally used because of the widely fluctuating steam loads thrown on the boilers. It is not unusual for a terminal boiler plant to go from 10% to 100% of capacity in minutes.

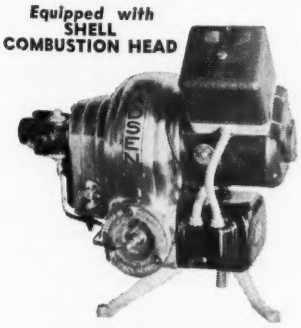
Such swings call for the best in equipment and maintenance—and you get them both in the modern oil terminal.

◈

Laverne N. Zimmerman has moved into the position of District Manager, New England States, for Combustioneer Heating Equipment according to a recent announcement from that division of The Steel Products Engineering Company, Springfield, Ohio. Mr. Zimmerman has been associated with the heating industry for many years. He resides at Wellesley, Mass.

MADSEN OIL BURNERS

Equipped with
SHELL
COMBUSTION HEAD



The Burner
That Saves Up To
36%
On Oil

4 MODELS
¾ gph to 14 gph

Write today for dealership

MADSEN SERVICE • 3549 NICOLLET AVE.
MINNEAPOLIS, MINN.

HOW'S BUSINESS?

● If you're looking forward to a big year ahead and are wondering what you're going to do for money—whether it's a buyers' market or a sellers' market—we suggest that you look now into the Lexington financing plan of revolving loans on receivables.

Write for descriptive circulars

LEXINGTON CORPORATION
Financing from Maine to Maryland

10 Milk Street, Boston 8, Mass.
Baltimore, Maryland New York, New York

KLEENMASTER Makes Servicing Profitable

Eliminate your service loss on oil accounts. Kleenmaster grosses $7.00 per customer after selling expense and labor.

Keep your Drivers and Servicemen busy during the summer slack.

The "Big Bag" with your name in large type gives you "Billboard and Soundtruck" advertising.

Write for details including
Sales Manual and Profit Analysis

MOLLOY MACHINE CORPORATION

3445 N. Western Ave.
CHICAGO 18, ILL.

Heavy Oil Boilers

(*Continued from page 40*)

of the firebox volume per foot of linear flame travel found in the conventional compact firebox boiler. This restricted firebox volume condition sets up difficult oilburning problems involving elimination of noise and vibration. Where installations are made in factories or commercial bulidings with no tenancy, the noise element may not be of great importance. However, in hotels, apartment houses, theatres, churches or schools the noise and vibration have often made the occupancy of space immediately above the boiler room unpleasant, if not impossible. The ingenuity and experience of the oilburner dealer is then put to the test of modifying the objectionable results of firing with insufficient firebox volume.

A recently installed heavy oilburning battery of seven 260 H.P. boilers is shown in Figure 4. The oil settings are 6 feet high for a maximum oil rate of 130 gallons per hour. The plant supplies heat and domestic hot water in a municipal housing group consisting of approximately 1900 apartments with 7700 rooms and a population of 7200 individuals. The total size of the buildings runs to 15,000,000 cubic feet. Upon the completion of the installation, the boilers and burners were tested at various rates of operation from 44.65 to 100.2 gallons of oil per hour, the latter representing 132% of rated boiler output. With CO_2 readings slightly better than 12%, overall boiler and burner efficiencies of 80% were consistently obtained with less than 1% moisture in the steam. Flue gas temperatures were approximately 500° and draft loss through the boiler at 132% rating was 0.20 inches of water.

To maintain peak efficiency, the boilers are equipped with automatic soot blowers of the air-puff type, designed to operate at 100 lbs. air pressure. Flue doors are tightly clamped and asbestos-edge sealed as are also the fire doors, to prevent soot leaks when soot blowers are used and to minimize air leaks at all times. The illustration typifies a properly planned installation with adequate firebox volume for maximum oil-rate resulting in high efficiency and overall satisfactory operating results.

What has been done in this plant can be repeated elsewhere regardless of size if all problems are properly thought out, the installation well planned, and competently supervised and installed.

To keep out of trouble and stay in profit the oilburner dealer must be reasonably certain that the installation he is figuring on making will not only be efficient from the standpoint of fuel economy and low cost of maintenance, but that no objectionable factors will arise regarding soot, smoke, noise or vibration which might cause the purchaser to demand a radical and costly change in the installation to correct the annoying conditions that may be giving all concerned a collective headache. It is therefore prudent on the part of the dealer to make a complete engineering job survey before undertaking an installation and to make sure the survey is made by a representative with adequate experience and technical knowledge to come up with the correct answer.

Since many contracts stipulate the

Cleans Chimneys Permanently

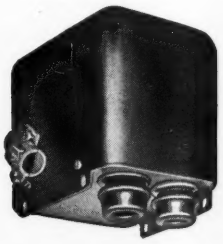
Stops down draft—prevents furnace explosions. Satisfaction guaranteed. This copper pot (with character) mailable.

For FREE BOOKLET and Dealer Proposition
Write
WIGWAM FLUE TOP CO.
ABINGTON **MASSACHUSETTS**
SAVES THREE KINDS OF FUEL

DONGAN TRANSFORMERS

They Have Stood the Test of Years

The best testimonial to the dependability of Dongan Transformers is that they have for years been standard equipment on leading makes of oilburners. Acquaint yourself now with the Dongan's many outstanding features.



Voltages from 5,000 to 20,000. A variety of sizes and mountings. Special types built to specifications.

Dongan Electric Manufacturing Co.
2981 Franklin **Detroit 7, Mich.**
"The Dongan Line Since 1909"

WRITE FOR LITERATURE

Repco TRIPLE-PASS WINTER AIR CONDITIONER

COMPACT—Five individual heat exchangers with triple-pass construction.

Patent Pending

Write for full details about exclusive franchises for your territory on our full line of REPCO Winter Air Conditioners.

REPUBLIC PRODUCTS CO.

7420 STATE ROAD PHILADELPHIA 36, PA.

final payment is to be made when the installation has been satisfactorily completed, the dealer should keep in mind that this last payment is the payment that contains his profit—all the previous payments, if he is lucky, cover only his expenses. Therefore in sizing up a job, writing a contract and making an installation, the dealer should keep uppermost in mind that elusive last payment, for there lies the profit and no dealer can afford to let it lie too long beset by job-troubles lest it lie there forever.

OHI Analyzes Registration At Philadelphia Exposition

AN ANALYSIS of the registration at the 1950 National Oil Heat Exposition, Philadelphia, Pa., made by Oil-Heat Institute of America, Inc., New York 16, N. Y., revealed that 5,448 total classifications were checked by registrants. This exceeded actual registrants since a number listed two major company activities, particularly those who indicated joint oilburner and fueloil dealer operations.

The analysis broke down the registration into 8 classifications—oilburner dealer, fueloil dealer, oilburner manufacturer, accessory manufacturer, oil refiner or marketer, architect or engineer, builder, others or miscellaneous.

Oilburner dealer registration was split almost evenly between 768 top management personnel and 797 installation or service men, with sales or advertising and engineering accounting for the bulk of 642 other classifications. Of the 1,073 fueloil dealer classifications, 410 were for top management, 365 for installation or service men, and, again, sales or advertising and engineering accounted for most of the remainder.

Of the oilburner manufacturers who registered 309 out of 607 were from the sales or advertising departments and 538 of 1,064 accessory manufacturers were from the same category. A tabulation of the breakdown follows:

Tabulation of Registration
1950 National Oil Heat Exposition
Philadelphia, Pennsylvania

	Top Management	*Production*	*Sales or Advt.*	*Engineering*	*Install. or Service*	*Architect or Constr.*	*Office*	*Other*	*Totals*
Oilburner Dealer	768	14	384	198	797	2	20	24	2,207
Fueloil Dealer ..	410	7	177	81	365	—	14	19	1,073
Oilburner Mfgrs.	110	25	309	122	28	—	6	7	607
Boiler, Furnace (Access.) Mfgrs.	223	38	538	163	68	2	11	21	1,064
Oil Refiner or Marketer	9	—	88	20	7	—	3	2	129
Architect or Engineer	5	1	6	26	7	7	—	—	52
Builder	4	1	—	4	5	1	—	2	17
Other & Misc. ..	70	5	101	36	24	—	10	53	299
Total	1,599	91	1,603	650	1,301	12	64	128	5,448

Write today for this free new Gorton Valve sizing plate

GORTON VALVES

ACTUAL SIZES OF AIR OUTLETS

4 5 6 C D 1 2

For Radiators For Mains

(Less than ½ actual size)

GORTON HEATING CORPORATION

Since 1887 Manufacturers of Heating Equipment

CRANFORD NEW JERSEY

Hayward Mfg. Co., Inc.

505 Court St. Brooklyn 31, N. Y.

•

Rotary Oil Burners

Pressure Atomizing Oil Burners

Boiler Burner Units

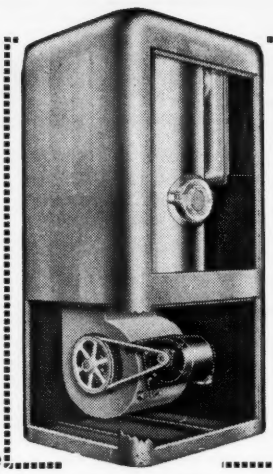
Many attractive territories open for Dealer & Distributor's franchise

SILENT SIOUX

Complete Package Unit

The new Silent Sioux Winter Air Conditioner "package" offers unbeatable quality that equals that of your top quality competition. Post-war quality at pre-war prices!!! Easy to sell . . . economical to install. The winning combination for greatest sales . . . lowest inventory. Special Dealer Helps, Point of Sale Promotional Material, National Advertising, all combine to make this your Biggest Year as a Silent Sioux Dealer.

Write today for complete information about Silent Sioux franchise



WINTER AIR CONDITIONER

This winter air conditioner has 85,000 BTU output . . . will heat the larger 6 and 7 room home . . . has forced draft with F8-14 Silent Sioux Burner . . . forced circulation at 1200 C.F.M. . . . and finished in attractive gray hammertone. Comes complete with burner, blower, belt, pulleys, limit control, fan switch, oil control, fused entrance switch, wall thermostat, and draft regulator.

For greater sales and lower inventory, get acquainted with the complete line of Silent Sioux heating equipment. Send your name and address on your letterhead for information about the Silent Sioux Dealer Franchise.

SILENT SIOUX OIL BURNER CORP.
Dept. FO 750 Orange City, Iowa

Oilheating Trends

(*Continued from page 12*)

tions from fueloil distributors at $50 per truck operating, another one at $55 per truck operating. Most of the cities have rather indefinite fund raising programs or rather it would be better to say that the contributions don't match the size of the dealer operation. They are often as not in direct ratio to the members' association dues or else the local association has accumulated a cash surplus from its income of former years and this is being used for the program.

Following a request from one of the reporting dealers the group was asked this month just where and when oilburner sales contracts are signed. The composite answer is that approximately 80% are signed in the buyer's home, 15% in the dealer's office, and 5% in the customer's place of business. As to when oilburner contracts are signed, approximately 60% are signed at the prospect's home in the evening and only 40% during normal working hours.

FORWARD BUYING: Among the reporting dealers 45% say that they are buying all types of equipment and supplies in quantity greater than normal for this season of the year. All dealers were then asked how their dollar inventory on June 1 compared with the same date a year ago. Thirty-five percent reported higher inventories ranging from 10% to 120% higher; 16% reported lower inventories ranging from 2% to 50% lower; the remaining 49% reported inventories about the same. The overall effect of this is an average inventory position 8% higher than a year ago. This refers not only to oilburners but includes installation material, boilers, furnaces and all types of maintenance supplies.

There has been some comment in the industry about prices of oilburner tanks going up, but this does not appear to be very significant as yet. Average prices paid by dealers in May are shown in the table.

	275 gal.	*550 gal.*
New England	$24	$63
Middle-Atlantic	27	66
South	28	50
Midwest	24	60
Pacific Northwest	27	57
U. S. Average	26	62

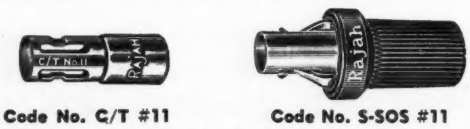
Asked if tank prices had been raised in their markets during the past 60 days, 55% of the reporting dealers say that they were.

FUELOIL PRICES: Asked their opinions on fueloil prices between now and the end of the year the large majority of the reporting fueloil distributors expect no change. In New England 63% expect no change, 21% expect a rise, and 16% expect a drop. In the Mid-Atlantic states 69% expect no change, 26% expect a rise and 5% a drop. In the Southern states 51% expect no change and the other 49% expects a rise. In the Midwest 64% anticipate no change, 25% look for a rise, and 11% predict a drop. All of the companies reporting from the Pacific Northwest expect no change. The composite picture, showing many more expectations of a rise than a drop, would indicate that the overall industry leans in that direction.

FUELOIL STOCKS: Reflecting somewhat their attitude on the future price outlook, New England dealers on June 1 had fueloil bulk stocks 6% above the previous year. Mid-Atlantic dealers were up 9% while Midwest dealers had stocks 35% below June 1, 1949. The answers on this question from the South

RAJAH TERMINALS

FOR OIL BURNER SPARK PLUG IGNITION CONNECTIONS
Made in Two Styles
CRIMP TYPE and SOLDERLESS



Code No. C/T #11 Code No. S-SOS #11

THE RAJAH CO. BLOOMFIELD, NEW JERSEY

CANADIAN MANUFACTURER—
PRESSURE VAPORIZING BURNER

We have a pressure vaporizing burner employing new principle which eliminates carbon on low fire, has a positive mechanical means of controlling oil flow which is entirely new and many other improvements over present burners, and are looking for an aggressive company to manufacture the burners for the American conversion market and to promote its sale to unit builders.

Box No. 875, c/o Fueloil & Oil Heat
232 Madison Ave., New York 16, N. Y.

It's A Positive Fact!...

... that if you do not want to jump your sales, and push up your profits, DO NOT get interested in THERM-O-BLAST Oilburners and Gasburners. The price, our service, and the way the customers go for them, get a strong hold on our dealers and jobbers, and they zoom their bank accounts. Easy to sell, easy to install and we have all the necessary approvals, (AGA and Underwriters) models and capacities. Are you an old timer? If so you'll quickly see what we've got. Are you a newcomer? THERM-O-BLAST will save you months of "learning." Drop us a note, wire or phone, BUT DON'T DO IT UNLESS YOU WANT TO MAKE SOME EASY MONEY! Jobbers and dealers welcome!

O'HALLORAN INDUSTRIES, 12305 Turner, Detroit 4, Michigan Phone HO 2122

and the Pacific Northwest were too limited to be representative. We do not have the actual stock figures of a year ago so cannot state this condition in barrels but rather asked the question simply to get a reflection of the composite fueloil distributors' opinion of the market.

Stocks of distillate heating oil at major terminals, refineries, and in transport, in the area East of the Rockies, on June 10 were 33,475,000 barrels. This compares with 54,615,000 barrels on the corresponding date of 1949. This decline is very significant in view of the anticipated rise in demand discussed in the opening paragraphs of this report.

DEALER COMMENTS: Typical comments on questions of the month are these . . . "Every chart you see on crude oil production and refinery runs shows crude production going down and runs to stills going up. This can only bring trouble, perhaps the same trouble we had two years ago" . . . "We are doing 3 times the dollar volume on heating compared with last year's figure; this is due to setting up an active sales organization. We are getting our proper mark-up now. Our average conversion sale is $340 compared with last year's $249" . . . "Why are we having to pay more for steel products such as Bx, tanks, convectors, steel pipe, etc." . . . "1950 is our best oilburner year" . . . "It beats me why the majority of dealers in this sector are installing burners at cost when this should be one of the best years for sales we have had. There has been a breach of code made on the installation of almost every competitive job in our town and we are often called on to make the corrections" . . . "We are doing a considerable amount of combination gas and oilburner installations, usually installed in schools, apartments, and other larger type buildings. This is done where there is a saving by using stand by equipment."

◈

F. J. Rudolph has been named assistant manager of the Kansas City, Mo., district by Perfection Stove Co., Cleveland 4, Ohio. For the past year he held the same post in the Jersey City, N. J. district. He has been with the company since the end of World War I.

J. R. Vernon, Johnson Service Co., Milwaukee, Wis., was a featured speaker at the three-day institute on automatic controls, sponsored by the Extension Service and the College of Engineering, University of Wisconsin, at Madison, May 16 to 18. *P. D. Gayman,* western district manager and *H. W. Schreiber,* Milwaukee branch manager also participated to answer questions and demonstrate equipment.

B. L. Douglass has been appointed service manager, Sundstrand Fuel Div., Sundstrand Machine Tool Co., Rockford, Ill. Prior to his present appointment, Mr. Douglass spent considerable time in the Production, Inspection, Research and Engineering Departments of the Division. He is an Illinois Tech. graduate and served in the Navy during the war.

George A. Chappell, Jr., has joined Automatic Firing Corp., St. Louis, Mo., as assistant to the president. He was with Union Electric Co. for the past 20 years, closely associated with air conditioning developments. He will be in charge of product engineering.

Looking for Results?

TRY KEK on that TOUGH JOB
GET ANY BOILER CLEAN
SAFELY and SURELY

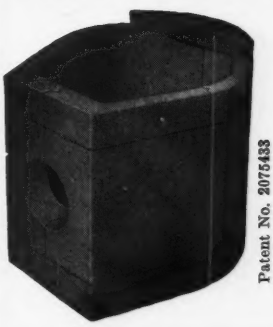
TRY OUR OTHER QUALITY PRODUCTS TOO!

- KENBRIC Soot Remover — Bricks and Rods
- KENITE Boiler Repair — Permanent, Odorless
- KENITE Joint Compounds — Non-Hardening
- KENITE Oil Pipe Plastic for Oil, Gas & Refrigerants

Ask Your Jobber or Order Direct. Jobbers Protected.
Write for FREE BULLETINS

KENITE LABORATORY
Madison New Jersey

QUICK HEAT UP



LITE-CAST
COMBUSTION CHAMBERS
SOLD BY
LEADING JOBBERS
NATIONALLY

Patent No. 2075433

Write for our new Catalog which contains complete information and specifications on Combustion Chambers.

MONOGRAM PRODUCTS CO., INC.
PHILADELPHIA 4, PA.

An Unlimited Selling Market with the new

ARTCRAFT

SUSPENDED FURNACE

Sell to Everyone in Town!!

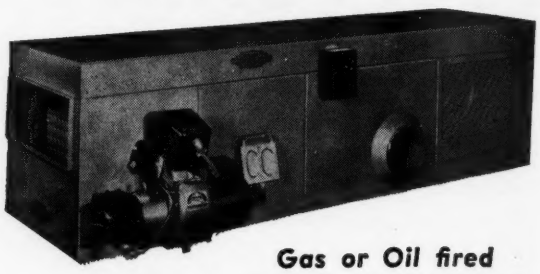
- Homes
- Stores
- Super Marts
- Shops
- Garages
- Factories
- Warehouses
- Recreation Halls
- Commercial Buildings
- Service Stations

Our low competitive Price means more sales, greater profits.

APPLY NOW FOR EXCLUSIVE TERRITORY. FOR FURTHER INFORMATION

CHICAGO STEEL FURNACE COMPANY,

Hangs from the Ceiling Saves valuable floor Space



Gas or Oil fired 75,000 to 350,000 B.T.U.

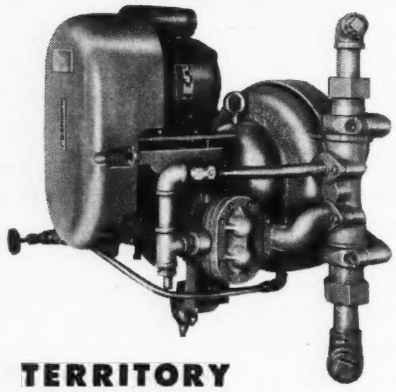
9326 S. Anthony Ave., Chicago 17, Illinois

FEDERAL

HEAVY OIL BURNERS

FOR #5 AND #6 OIL

Fully Automatic—Belt Drive
High Speed—High Efficiency



TERRITORY AVAILABLE

for responsible, qualified dealers

Approved
Underwriters' Laboratories
Board of Standards & Appeals N. Y.
Fire Marshal—Phila., Pa.

FEDERAL

OIL BURNER CO., INC.
3620 WALNUT ST.
PHILA. 4, PA.

DEGREE DAY TABLES

ONE MONTH ONLY					SEASON TO DATE (Sept. 1 to May 31)			
	May		Percent					Percent
Normal	1949	1950	Change*		Normal	1949	1950	Change*
221	190	238	+ 7.6	Albany	6587	5560	6674	+ 1.3
32	4	8	— 75.0	Atlanta	2999	2585	2519	— 16.1
99	79	102	+ 3.0	Baltimore	4509	3670	3928	— 12.9
248	192	280	+ 12.9	Boston	5853	4979	5546	— 5.3
351	248	250	— 28.8	Buffalo	6805	5886	6443	— 5.4
259	198	231	— 10.9	Chicago	6205	5556	6007	— 3.2
132	60	56	— 57.6	Cincinnati	4993	3991	4150	— 16.9
255	183	203	— 20.4	Cleveland	6094	5210	5562	— 8.8
14	0	2	— 85.8	Dallas	2378	2473	2083	— 12.5
271	236	356	+ 31.3	Denver	5784	6037	5253	— 9.2
165	85	139	— 15.8	Des Moines	6356	6308	6510	+ 2.4
252	209	211	— 16.3	Detroit	6502	5797	6271	— 3.6
263	191	178	— 32.4	Grand Rapids	6655	5933	6422	— 3.6
216	193	236	+ 9.2	Hartford	6037	5393	5953	— 1.4
409	318	506	+ 23.7	Helena	7600	8830	8489	+ 11.6
12	0	..	..	Houston	1333	1257	886	— 33.6
155	101	70	— 54.9	Indianapolis	5459	4814	4929	— 9.8
106	27	38	— 64.2	Kansas City	4971	4874	4733	— 4.8
104	76	155	+ 49.0	Los Angeles	1362	1860	1527	+ 12.1
92	37	47	— 49.0	Louisville	4421	3799	3998	— 9.6
340	310	369	+ 8.5	Milwaukee	6955	6557	7044	+ 1.2
255	171	287	+ 12.5	Minneapolis	7898	7649	8348	+ 5.6
1	0	105	..	New Orleans	1208	870	1087	— 10.1
176	141	204	+ 15.9	New York	5270	4241	4643	— 11.9
152	73	142	— 6.6	Omaha	6074	6300	6428	+ 5.8
115	96	148	+ 28.6	Philadelphia	4720	4816	4348	— 7.9
170	116	98	— 42.4	Pittsburgh	5427	4504	4818	— 11.3
375	279	371	— 1.1	Portland, Me.	7128	6223	7290	+ 2.2
241	147	259	+ 7.4	Portland, Ore.	4214	4524	4552	+ 8.0
245	186	252	+ 2.8	Providence	5946	4788	5444	— 8.5
86	87	69	— 19.8	Roanoke	4114	3884	3855	— 6.3
88	24	41	— 53.5	St. Louis	4602	4311	4258	— 7.5
233	177	303	+ 30.0	Salt Lake City	5568	6079	5356	— 3.9
252	269	316	+ 25.3	San Francisco	2569	3115	2790	+ 8.6
485	464	507	+ 4.5	Sault Ste. Marie	8901	8205	9183	+ 3.1
304	187	332	+ 9.2	Seattle	4560	4785	4868	+ 6.7
226	193	194	— 14.2	Toledo	6202	5626	6114	— 98.6
104	71	74	— 28.9	Washington	4582	3640	3804	— 17.0

*Compared with normal. Note: Above figures secured from Monthly Meteorological Summaries published by U. S. Weather Bureau offices in individual cities.